

DRAFT FINAL SILVER BOW CREEK CERCLA PHASE II REMEDIAL INVESTIGATION DATA SUMMARY

SILVER BOW COUNTY, MONTANA



AREA I OPERABLE UNIT



Montana Department of
Health and Environmental Sciences

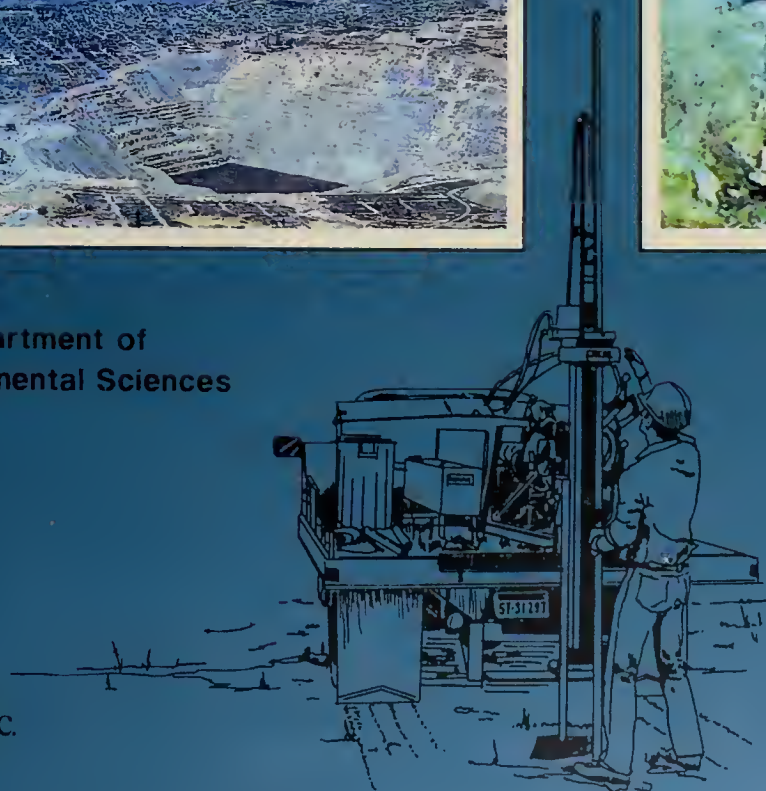
VOLUME II:
APPENDICES

AUGUST 1990

Prepared by:

Chen & Northern, Inc.

CH2M HILL





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SILVER BOW CREEK CERCLA
PHASE II REMEDIAL INVESTIGATION DATA SUMMARY
AREA I OPERABLE UNIT
VOLUME II: APPENDICES

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Helena, Montana

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APPENDIX A-1

Surface Water Sampling Site Locations

APPENDIX A-1: SURFACE WATER SAMPLING SITE LOCATIONS

Page 1 of 1

Sampling Site	Elevation	State Plane Coordinates		Location Description
		East	North	
AI-SW-PS-02	1201780	653191		Harrison Ave. Storm Sewer Outfall near Civic Center
AI-SW-PS-04	1195359	651918		Missoula Gulch at Mouth
AI-SW-PS-05	1196967	651527		Kaw Ave. Storm Sewer Outfall near Montana St.
AI-SW-PS-08	1192808	651579		Butte Sewage Treatment Plant Discharge
AI-SW-PS-14	1203992	654916		Drainage entering Metro Storm Drain from Weed Concentrator
AI-SW-PS-15	1190904	652284		Drainage on West end of Colorado Tailings to Silver Bow Creek
AI-SW-SS-02	1202618	654136		Metro Storm Drain at Head at USGS Gaging Station
AI-SW-SS-03	1198010	651203		Metro Storm Drain near Mouth; 200 ft W. of Kaw Av.
AI-SW-SS-04	1197441	651016		Blacktail Creek near Mouth at USGS Gaging Station
AI-SW-SS-06	1193212	650971		Silver Bow Cr. above Co. Tailings, inside the Crusher Plant
AI-SW-SS-07	1190665	651987		Silver Bow Cr. below Co. Tailings at USGS Gaging Station

APPENDIX A-2

Surface Water Quality Data (Inorganics)

02/23/90

Revision level: XCHECK

PHYSICAL PARAMETERS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	EPA TAG NUMBERS	SAMPLING METHOD	Water Temperature (C)	Field pH (s.u.)	Specific Conductance (umhos/cm)	Total Hardness (mg/L) (S)	Total Suspended Solids (mg/L)
AI-SW-PS-02	N	03/10/89	1500	8-87512, 8-87513, 8-87516, 8-88617, 8-88618	COMPOSITE	3.2	6.6	298	140	415
AI-SW-PS-04	N	03/10/89	1500	8-87520, 8-87521, 8-88619, 8-88620, 8-88621	COMPOSITE	5.9	4.7	324	89	404
AI-SW-PS-05	N	03/10/89	1500	8-87518, 8-87519, 8-88622, 8-88623, 8-88624	COMPOSITE	5.3	8.9	237	76	242
AI-SW-PS-08	N	03/10/89	1500	8-87524, 8-87525, 8-88625, 8-88626, 8-88627	COMPOSITE	9.3	7.1	475	96	10
AI-SW-PS-14	N	03/10/89	1500	8-87501, 8-87503, 8-88628, 8-88629, 8-88630	COMPOSITE	1	5.0	652	347	1920
AI-SW-PS-14	R	03/10/89	1515	8-87502, 8-87504, 8-88631	COMPOSITE	1	5.0	652	16	16
AI-SW-PS-14	88	03/10/89	1530	8-87505, 8-87506, 8-88632	COMPOSITE		5.0	652	1 U	1 U
AI-SW-PS-14	W8	03/10/89	1545	8-87507, 8-87508, 8-88633	COMPOSITE		5.0	652	1 U	1 U
AI-SW-PS-14	8FS	03/10/89	1600	8-87509, 8-87537, 8-88640, 8-88641, 8-88642	COMPOSITE		5.0	652	4	
AI-SW-PS-15	N	03/10/89	1500	8-87528, 8-87529, 8-88634, 8-88635, 8-88636	COMPOSITE	4	4.4	732	211	64
AI-SW-PS-15	R	03/10/89	1515	8-87535, 8-87536, 8-88637	COMPOSITE	4	4.4	732	44	44
AI-SW-PS-15	88	03/10/89	1530	8-87533, 8-87534	COMPOSITE		4.4	732	1	1
AI-SW-PS-15	W8	03/10/89	1545	8-87531, 8-87532, 8-88639	COMPOSITE		4.4	732	2	2
AI-SW-PS-15	8FS	03/10/89	1600	8-87530, 8-87538, 8-88643, 8-88644, 8-88645	COMPOSITE		4.4	732	4	4
AI-SW-SS-02	N	03/10/89	1500	8-87510, 8-87511, 8-88601, 8-88602, 8-88603	COMPOSITE	0.6	5.5	593	310	297
AI-SW-SS-03	N	03/10/89	1500	8-87514, 8-87515, 8-88604, 8-88605, 8-88606	COMPOSITE	4.3	7.4	325	131	367
AI-SW-SS-04	N	03/10/89	1500	8-87516, 8-87517, 8-88607, 8-88608, 8-88609	COMPOSITE	5.9	7.6	279	90	228
AI-SW-SS-06	N	03/10/89	1500	8-87522, 8-87523, 8-88610, 8-88611, 8-88612	COMPOSITE	9.1	7.0	262	114	228
AI-SW-SS-07	N	03/10/89	1500	8-87526, 8-87527, 8-88613, 8-88614, 8-88615	COMPOSITE	6.6	6.7	360	114	257

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, 8FS = blind field standard, W8 = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

5) Hardness values calculated from values for total metals by: Hardness = (2.497 * Ca) + (4.118 * Mg).

02/23/98

APPENDIX A-2, continued

Revision level: XCHECK

COMMON IONS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Sulfate (mg/L)	Total Alkalinity as CaCO ₃ (mg/L)	Chloride Total (mg/L)	Fluoride Total (mg/L)	Nitrate & Nitrite as N (mg/L)	
AI-SW-PS-02	N	03/18/89	1500	67.3	43	33.0	1.14		3.39
AI-SW-PS-04	N	03/18/89	1500	29.9	45	59.0	1.01		2.51
AI-SW-PS-05	N	03/18/89	1500	25.8	49	33.0	1.14		2.95
AI-SW-PS-08	N	03/18/89	1500	47.2	144	31.0	0.37		2.13
AI-SW-PS-14	N	03/18/89	1500	381.0	9	13.0	1.57		2.14
AI-SW-PS-14	R	03/18/89	1515	385.0	3	12.3	1.84		2.10
AI-SW-PS-14	88	03/18/89	1530	1.0 U	3	1.0 U	0.10 U		0.16
AI-SW-PS-14	W8	03/18/89	1545	1.0 U	4	1.0 U	0.10 U		0.65
AI-SW-PS-14	8FS	03/18/89	1600	0.0	0	0.0	0.00		0.28
AI-SW-PS-15	N	03/18/89	1500	367.0	0	11.5	0.56		1.16
AI-SW-PS-15	R	03/18/89	1515	358.0	0	10.9	0.54		6.16
AI-SW-PS-15	88	03/18/89	1530	1.0 U	3	1.0 U	0.10 U		0.13 U
AI-SW-PS-15	W8	03/18/89	1545	1.0 U	2	1.0 U	0.10 U		0.13 U
AI-SW-PS-15	8FS	03/18/89	1600	94.6	35	77.5	1.14		8.13 U
AI-SW-SS-02	N	03/18/89	1500	330.0	8	14.0	1.39		7.75
AI-SW-SS-03	N	03/18/89	1500	65.0	41	34.9	1.09		2.80
AI-SW-SS-04	N	03/18/89	1500	34.9	57	24.4	0.58		2.64
AI-SW-SS-06	N	03/18/89	1500	42.9	49	33.0	0.83		4.43
AI-SW-SS-07	N	03/18/89	1500	47.5	61	33.0	0.77		1.23

NOTES: 1) Units are ug/L unless otherwise noted.

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4) Blank values indicate parameters not determined or not reported.

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Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Aluminum Total	Aluminum Dissolved	Aluminum Acid Soluble	Antimony Total	Antimony Dissolved	Antimony Acid Soluble	Arsenic Total	Arsenic Dissolved	Arsenic Acid Soluble
AI-SW-PS-02	N	03/10/89	1500	16200.0	57.7 U	3220.0	48.7 U	48.7 U	48.7 U	61.2	4.7	35.0
AI-SW-PS-04	N	03/10/89	1500	11900.0	61.0 8	1800.0	59.0 8	48.7 U	48.7 U	37.4	8.4	20.5
AI-SW-PS-05	N	03/10/89	1500	6070.0	102.0 8	1430.0	48.7 U	48.7 U	48.7 U	38.9 LR	10.4	27.6
AI-SW-PS-08	N	03/10/89	1500	79.0 8	57.7 U	58.0 8	48.7 U	48.7 U	48.7 U	4.0 W	4.1 W	4.3 W
AI-SW-PS-14	N	03/10/89	1500	27600.0	2750.0	10700.0	56.0 8	48.7 U	48.7 U	1000.0	1.0 W	115.0
AI-SW-PS-14	R	03/10/89	1515			10300.0			48.7 U			113.0
AI-SW-PS-14	88	03/10/89	1530			57.7 U			48.7 U			1.0 U
AI-SW-PS-14	W8	03/10/89	1545			57.7 U			48.7 U			1.0 UuN
AI-SW-PS-14	8FS	03/10/89	1600	511.0	626.0	573.0	48.7	48.7 U	48.7 U	80.0	96.0	90.0
AI-SW-PS-15	N	03/10/89	1500	7240.0	5890.0	600.0	48.7 U	48.7 U	48.7 U	120.0	8.1	99.1 S
AI-SW-PS-15	R	03/10/89	1515			6450.0			48.7 U			82.0
AI-SW-PS-15	88	03/10/89	1530			57.7 U			48.7 U			1.0 U
AI-SW-PS-15	W8	03/10/89	1545			57.7 U			48.7 U			95.0
AI-SW-PS-15	8FS	03/10/89	1600	572.0	646.0	722.0	48.7 U	48.7 U	48.7 U	89.0	97.0	55.4
AI-SW-SS-02	N	03/10/89	1500	11100.0	1200.0	5060.0	48.7 U	56.0 8	48.7 U	93.0	1.0 W	63.0
AI-SW-SS-03	N	03/10/89	1500	11500.0	142.0 8	2800.0	48.7 U	48.7 U	48.7 U	91.0	5.4 W	13.1
AI-SW-SS-04	N	03/10/89	1500	6500.0	57.7 U	760.0	48.7 U	48.7 U	48.7 U	19.9	6.7 W	46.1
AI-SW-SS-06	N	03/10/89	1500	11100.0	136.0 8	1540.0	48.7 U	48.7 U	48.7 U	94.0	8.9	49.1 N
AI-SW-SS-07	N	03/10/89	1500	7140.0	89.0 8	1360.0	61.0	48.7 U	48.7 U	92.0	11.4	

NOTES: 1) Units are ug/L unless otherwise noted.

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02/23/90

APPENDIX A-2: continued

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Barium			Beryllium			Beryllium			Cadmium		
				Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble
AI-SW-PS-02	N	03/10/89	1500	203.0	27.0 B	113.0 B	2.0	1.0 U	1.0 U	19.1 S	8.2 LR	13.1 DJ			
AI-SW-PS-04	N	03/10/89	1500	134.0 B	26.4 U	88.0 B	1.0	1.0 U	1.0 U	25.6 LR	10.1 S	10.2 DJ			
AI-SW-PS-05	N	03/10/89	1500	97.0 B	26.4 U	66.0 B	1.0 U	1.0 U	1.0 U	5.4 DSJ	4.2 S	6.0 LR			
AI-SW-PS-08	N	03/10/89	1500	37.0 B	30.0 B	38.0 B	1.0 U	1.0 UN	1.0 U	1.0 U	8.4	1.6			
AI-SW-PS-14	N	03/10/89	1500	210.0	26.4 U	39.0 B	6.0	1.0 UN	3.0	90.2	119.0 S	173.0 S			
AI-SW-PS-14	R	03/10/89	1515			37.0 B			3.0			107.0			
AI-SW-PS-14	88	03/10/89	1530			26.4 U			1.0 U			1.0 UJ			
AI-SW-PS-14	W8	03/10/89	1545			26.4 U			1.0 U			0.1 U			
AI-SW-PS-14	8FS	03/10/89	1600	26.4 U	26.4 U	26.4 U	97.0 EJ	103.0	103.0	25.2 LR	39.5 DSJ	26.5			
AI-SW-PS-15	N	03/10/89	1500	57.0 B	26.4 U	26.4 U	2.0	1.0 U	1.0 U	74.0	84.5	163.0 LDR			
AI-SW-PS-15	R	03/10/89	1515			26.4 U			1.0 U			100.0 LDR			
AI-SW-PS-15	88	03/10/89	1530			26.4 U			1.0 U			1.0 UJ			
AI-SW-PS-15	W8	03/10/89	1545			26.4 U			1.0 U			32.4 S			
AI-SW-PS-15	8FS	03/10/89	1600	26.4 U	26.4 U	26.4 U	103.0 EJ	106.0	125.0	24.0	36.2 DJ	156.0 LDJ			
AI-SW-SS-02	N	03/10/89	1500	89.0 B	26.4 U	82.0 B	2.0	1.0 U	1.0 U	61.6 L	123.0 LR	17.1 DJ			
AI-SW-SS-03	N	03/10/89	1500	149.0 B	26.4 U	84.0 B	2.0	1.0 U	1.0 U	30.9 S	5.0	3.2 LDR			
AI-SW-SS-04	N	03/10/89	1500	118.0 B	38.0 B	84.0 B	1.0 U	1.0 U	1.0 U	1.9 S	1.9 S	10.3 LDR			
AI-SW-SS-06	N	03/10/89	1500	177.0 B	29.0 B	84.0 B	1.0	1.0 U	1.0 U	7.2	14.1 S	10.3 LDR			
AI-SW-SS-07	N	03/10/89	1500	142.0 B	27.0 B	77.0 B	2.0	1.0 U	1.0 UN	6.9	3.0 B	6.4 DJ			

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APPENDIX A-2: continued

02/23/90

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Calcium Total	Calcium Dissolved	Calcium Acid Soluble	Chromium Total	Chromium Dissolved	Chromium Acid Soluble	Chromium (hexavalent) Dissolved	Cobalt Total	Cobalt Dissolved	Cobalt Acid Soluble
AI-SU-PS-02	N	03/10/89	1500	40600	31400	43000	43.0	9.8 U	9.8 U	5 U	20.0 8	9.0 8	12.0 8
AI-SU-PS-04	N	03/10/89	1500	24800	19300	26200	32.0	9.8 U	13.0	5 U	12.0 8	8.0 U	8.0 8
AI-SU-PS-05	N	03/10/89	1500	23600	19100	25200	27.0	9.8 U	9.8 U	5 U	8.0 U	8.0 U	8.0 U
AI-SU-PS-08	N	03/10/89	1500	27000	28700	30200	9.8 U	9.8 U	9.8 U	5 U	8.0 U	8.0 U	10.0 8
AI-SU-PS-14	N	03/10/89	1500	107000	121000	129000	31.0	9.8 U	13.0	5 U	52.0	42.0 8	51.0
AI-SU-PS-14	R	03/10/89	1515			125000			12.0				50.0
AI-SU-PS-14	88	03/10/89	1530			615 U			9.8 U				8.0 U
AI-SU-PS-14	W8	03/10/89	1545			615 U			9.8 U				8.0 8
AI-SU-PS-14	8FS	03/10/89	1600	954 8	615 U	615 U	102.0	103.0	101.0		92.0	99.0	101.0
AI-SU-PS-15	N	03/10/89	1500	71000	74800	77200	9.8 U	9.8 U	9.8 U	20 UJ	12.0 8	14.0 8	14.0 8
AI-SU-PS-15	R	03/10/89	1515			76300			11.0				19.0 8
AI-SU-PS-15	88	03/10/89	1530			615 U			9.8 U				8.0 U
AI-SU-PS-15	W8	03/10/89	1545			615 U			128.0		93.0	101.0	123.0
AI-SU-PS-15	8FS	03/10/89	1600	910	615 U	615 U	106.0	103.0	9.8 U	5 U	38.0 8	28.0 8	38.0 8
AI-SU-SS-02	N	03/10/89	1500	100000	106000	112000	16.0	9.8 U	9.8 U	5 U	11.0 8	9.0 8	15.0 8
AI-SU-SS-03	N	03/10/89	1500	40600	36600	41500	59.0	9.8 U	14.0	5 U	8.0 8	8.0 U	8.0 U
AI-SU-SS-04	N	03/10/89	1500	24400	23800	24300	23.0	9.8 U	9.8 U	5 U	12.0 8	8.0 U	10.0 8
AI-SU-SS-06	N	03/10/89	1500	31900	28000	29800	35.0	9.8 U	12.0	5 U	17.0 8	8.0 U	8.0 U
AI-SU-SS-07	N	03/10/89	1500	32500	30100	30800	37.0	9.8 U	9.8 U	5 U			

NOTES: 1) Units are ug/L unless otherwise noted.

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4) Blank values indicate parameters not determined or not reported.

02/23/98

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Copper			Copper			Iron			Lead		
				Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble
A1-SJ-PS-02	N	03/10/89	1500	2070.0	309.0	1960.0 D	25700			42 U			2310 ED 454.0	1.4	370.0
A1-SJ-PS-04	N	03/10/89	1500	611.0	160.0	507.0	18900			42 U			1190 ED 334.0	6.3	256.0
A1-SJ-PS-05	N	03/10/89	1500	593.0	162.0	498.0 EJ	11300			42 U			992 EJ 267.0	4.3	184.0
A1-SJ-PS-08	N	03/10/89	1500	35.0	17.0 B	33.0	403			105			165 DJ 4.7 S	2.5 N	3.3
A1-SJ-PS-14	N	03/10/89	1500	17400.0	10800.0	18900.0	56200			805			19200 DJ 454.0	1.1	124.0
A1-SJ-PS-14	R	03/10/89	1515			18200.0							18400 DJ		130.0
A1-SJ-PS-14	BB	03/10/89	1530			42.0				42 U0			42 U0		1.2
A1-SJ-PS-14	W8	03/10/89	1545			10.0 8EJ				42 U0			42 U0		1.0 U
A1-SJ-PS-14	8FS	03/10/89	1600	106.0	104.0	98.0	255			42 U			79.0	97.0	96.0
A1-SJ-PS-15	N	03/10/89	1500	51.0 UZ	20600.0	21100.0	7420			1900			3270 DJ 87.0	7.0 N	17.2
A1-SJ-PS-15	R	03/10/89	1515			20700.0							3240 DJ		26.4 S
A1-SJ-PS-15	BB	03/10/89	1530												
A1-SJ-PS-15	W8	03/10/89	1545			5.1 U							42 U0		0.5 U
A1-SJ-PS-15	BFS	03/10/89	1600	101.0	103.0	118.0	296			42 U			70 8 183.0	101.0	105.0
A1-SJ-SS-02	N	03/10/89	1500	9660.0	6270.0	9990.0	21900			319			7430 EJ 177.0 S	0.5 UN	66.4 S
A1-SJ-SS-03	N	03/10/89	1500	2290.0	423.0	2250.0	28000			101			3940 ED 336.0	3.8	259.0
A1-SJ-SS-04	N	03/10/89	1500	145.0	20.0 B	107.0	12200			151			2490 ED 36.2	1.5	30.8 S
A1-SJ-SS-06	N	03/10/89	1500	1160.0	190.0	896.0	21600			137			3270 ED 224.0	4.0	134.0
A1-SJ-SS-07	N	03/10/89	1500	1090.0	162.0	911.0 D	14500			87 8			3200 ED 204.0	3.1	138.0 N

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, W8 = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Magnesium			Magnesium			Manganese			Manganese			Mercury		
				Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble	Total	Dissolved	Acid Soluble
AI-SU-PS-02	N	03/10/89	1500	9500	4450 B	5200	1570	922	1430	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-04	N	03/10/89	1500	6650	2860 B	3480 B	1630	351	1430	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-05	N	03/10/89	1500	4170 B	1880 B	2230	840	290	786 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-08	N	03/10/89	1500	6880	7470	7410	136	147	153 OJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-14	N	03/10/89	1500	19500	15000	15600	3200	2840	3380 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-14	R	03/10/89	1515			15100			3270 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-14	88	03/10/89	1530			300 U			7 8EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-14	WB	03/10/89	1545			300 U			2 UEJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-14	8FS	03/10/89	1600	300 U	300 U	300 U	97	101	102	4.40	5.10	5.10	4.40	5.10	5.10	5.10	5.10	5.10
AI-SU-PS-15	N	03/10/89	1500	8260	7930	7660	5740	6000	6070 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-15	R	03/10/89	1515			7770			6030 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-15	88	03/10/89	1530			300 U			3 8EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-PS-15	WB	03/10/89	1545			300 U												
AI-SU-PS-15	8FS	03/10/89	1600	300 U	300 U	300 U	101	104	122	4.30	5.40	5.40	4.30	5.40	5.40	5.40	5.40	5.40
AI-SU-SS-02	N	03/10/89	1500	14700	12900	13500	2520	2430	2600 EJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-SS-03	N	03/10/89	1500	7190	3990 B	4770 B	1130	752	1060	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-SS-04	N	03/10/89	1500	6940	5060	5430	481	186	374	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-SS-06	N	03/10/89	1500	8340	4590 B	4960 B	1040	486	879	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
AI-SU-SS-07	N	03/10/89	1500	7980	5390	5600	940	525	865	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U

- NOTES: 1) Units are ug/L unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, 8FS = blind field standard, WB = water blank (cross contamination blank), 88 = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

02/23/90

APPENDIX A-2: continued

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Nickel Total	Nickel Dissolved	Nickel Acid Soluble	Potassium Total	Potassium Dissolved	Potassium Acid Soluble	Selenium Total	Selenium Dissolved	Selenium Acid Soluble
AI-SW-PS-02	N	03/10/89	1500	14.8	2.0 U	13.1	7760	3820 B	4780 B	1.5 BUNJ	0.7 UJ	0.7 UUNJ
AI-SW-PS-04	N	03/10/89	1500	7.0	2.0 U	2.9	8400	4960 B	5520	8.6 LR	7.1	0.7 UUNJ
AI-SW-PS-05	N	03/10/89	1500	5.6	2.0 U	2.0 U	6210	4660 B	4890 B	0.7 U	1.0 B	0.7 U
AI-SW-PS-08	N	03/10/89	1500	2.0 U	2.0 U	9.5	13500	14100	14900	0.7 U	27.7 SZ	0.7 UJ
AI-SW-PS-14	N	03/10/89	1500	30.5	27.6 W	28.2	8050	2130 B	3030 B	0.7 UJ	0.7 UJ	0.7 UJ
AI-SW-PS-14	R	03/10/89	1515			38.1			2760 B			0.7 UUNJ
AI-SW-PS-14	BB	03/10/89	1530			6.8			1280 U			0.7 UUNJ
AI-SW-PS-14	WB	03/10/89	1545			3.9			1280 U			0.7 UUNJ
AI-SW-PS-14	BFS	03/10/89	1600	73.0	92.3	88.1	1280 U	1280 U	1280 U	15.2 SHR	24.8	23.4
AI-SW-PS-15	N	03/10/89	1500	10.0	2.1	15.0	2240 B	2010 B	1970 B	2.5 BUNJ	1.3 BU	8.5 S
AI-SW-PS-15	R	03/10/89	1515			17.3			2380 B			4.3 BS
AI-SW-PS-15	BB	03/10/89	1530									
AI-SW-PS-15	WB	03/10/89	1545			3.7			1280 U			0.7 UUNJ
AI-SW-PS-15	BFS	03/10/89	1600	74.9	98.6	100.0	1280 U	1280 U	1280 U	9.0 UUNJ	26.5	23.0 S
AI-SW-SS-02	N	03/10/89	1500	22.4	16.1	18.2	5210	2550 B	2440 B	0.9 BUNJ	0.7 UJ	0.7 UUNJ
AI-SW-SS-03	N	03/10/89	1500	9.6	2.0 UJ	2.0 U	6980	4140 B	4270 B	0.8 BUNJ	0.7 U	0.7 UUNJ
AI-SW-SS-04	N	03/10/89	1500	5.7	2.0 U	4.4	8640	7050	7860	1.8 BUNJ	3.0 BU	0.7 BUNJ
AI-SW-SS-06	N	03/10/89	1500	6.4	2.0 U	4.5	8520	5690	5340	0.7 BUNJ	29.5 SZ	0.7 UUNJ
AI-SW-SS-07	N	03/10/89	1500	5.0	2.0 U	2.7	9510	6690	6860	0.7 UUNJ	3.7 B	0.7 UUNJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

02/23/90

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Silver Total	Silver Dissolved	Silver Acid Soluble	Sodium Total	Sodium Dissolved	Sodium Acid Soluble	Thallium Total	Thallium Dissolved	Thallium Acid Soluble
AI-SU-PS-02	N	03/10/89	1500	4.6	0.2 U	0.2	23400	24700	415000	0.4 UANJ	0.4 U	0.4 UANJ
AI-SU-PS-04	N	03/10/89	1500	4.5	0.2 U	0.2 U	39100	39400	406000	0.4 UANJ	0.4 U	0.4 UANJ
AI-SU-PS-05	N	03/10/89	1500	1.7 W	0.2 U	0.2 U	22100	23500	26200 EJ	0.4 U	4.0 UW	0.4 U
AI-SU-PS-08	N	03/10/89	1500	0.9 W	0.2 U	0.2 U	34900	36800	278000	0.4 U	0.4 U	4.0 UW
AI-SU-PS-14	N	03/10/89	1500	5.1	0.2 U	0.3	7590	7190	8390	0.4 UW	0.4 UW	0.4 UW
AI-SU-PS-14	R	03/10/89	1515			0.2 U			7870			0.4 UANJ
AI-SU-PS-14	88	03/10/89	1530			0.2 U			2160 8			0.4 UANJ
AI-SU-PS-14	W8	03/10/89	1545			0.2 U			763 8			0.4 NJ
AI-SU-PS-14	8FS	03/10/89	1600	0.2 U	0.8	0.4	762 U	762 U	1360 8	0.4 U	0.4 U	0.4 U
AI-SU-PS-15	N	03/10/89	1500	3.8	0.2 U	2.2	18800	18500	1320000	0.4 UANJ	0.4 UW	0.4 UANJ
AI-SU-PS-15	R	03/10/89	1515			1.7			1350000			0.4 UANJ
AI-SU-PS-15	88	03/10/89	1530			0.2 U			86000			4.0 UANJ
AI-SU-PS-15	W8	03/10/89	1545			0.4			762 U	0.4 U	0.4 U	0.4 U
AI-SU-PS-15	8FS	03/10/89	1600	0.2 W	0.3	0.2 U	1090 8	762 U	120000 EJ	0.4 UAN	0.4 UW	0.4 UANJ
AI-SU-SS-02	N	03/10/89	1500	2.8	0.2 U	0.2 U	8140	7970	575000	0.4 UAN	0.4 UW	0.4 UANJ
AI-SU-SS-03	N	03/10/89	1500	3.4	0.2 U	0.2 U	24400	25800	542000	0.4 UANJ	0.4 U	0.4 UANJ
AI-SU-SS-04	N	03/10/89	1500	0.7	0.2 U	0.2 U	18900	19300	238000	0.4 UANJ	0.4 U	0.4 UANJ
AI-SU-SS-06	N	03/10/89	1500	4.5	0.2 U	0.2 U	24600	24200	94200	0.4 UANJ	0.4 U	0.4 UANJ
AI-SU-SS-07	N	03/10/89	1500	3.2	0.2 U	0.2 U	26600	27000		0.4 UANJ	0.4 U	0.4 UANJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX A-2: continued

Revision level: XCHECK

METALS DATA:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	Vanadium Total	Vanadium Dissolved	Vanadium Acid Soluble	Zinc Total	Zinc Dissolved	Zinc Acid Soluble	Comments
AI-SW-PS-02	N	03/10/89	1500	43.0 B	8.4 U	14.0 B	3810	1670	3610	
AI-SW-PS-04	N	03/10/89	1500	34.0 B	8.4 U	11.0 B	2190	503	1730	
AI-SW-PS-05	N	03/10/89	1500	20.0 B	8.4 U	8.4 U	1160	138	932 EJ	
AI-SW-PS-08	N	03/10/89	1500	8.4 U	8.4 U	8.4 U	279	162	174 EJ	
AI-SW-PS-14	N	03/10/89	1500	59.0	8.4 U	20.0 B	16800	15100	18200 EJ	
AI-SW-PS-14	R	03/10/89	1515			18.0 B			18800 EJ	
AI-SW-PS-14	B8	03/10/89	1530			8.4 U			30 EJ	
AI-SW-PS-14	WB	03/10/89	1545			8.4 U			5 UEJ	
AI-SW-PS-14	BFS	03/10/89	1600	235.0	252.0	253.0	302 EJ	113	105	
AI-SW-PS-15	N	03/10/89	1500	10.0 B	8.4 U	9.0 B	27200	20900	28300 EJ	
AI-SW-PS-15	R	03/10/89	1515			8.4 U			29200 EJ	
AI-SW-PS-15	B8	03/10/89	1530							
AI-SW-PS-15	WB	03/10/89	1545			8.4 U			14 BEJ	
AI-SW-PS-15	BFS	03/10/89	1600	248.0	260.0	306.0	543 EJ	104	116	
AI-SW-SS-02	N	03/10/89	1500	21.0 B	8.4 U	9.0 B	11900	12000	13800	
AI-SW-SS-03	N	03/10/89	1500	30.0 B	8.4 U	8.4 U	3040	1320	3110	
AI-SW-SS-04	N	03/10/89	1500	29.0 B	0.4 U	14.0 B	312	30	121	
AI-SW-SS-06	N	03/10/89	1500	39.0 B	8.4 U	11.0 B	1740	587	1390	
AI-SW-SS-07	N	03/10/89	1500	33.0 B	8.4 U	13.0 B	1730	606	1540	

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX A-3

Surface Water Quality Data (Organics)

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

SAMPLE I.D. SAMPLE DATE SAMPLE TIME	=> A1-SW-SS-04-D 3-10-89 1540	=> A1-SW-SS-04-S 3-10-89 1530	=> A1-SW-SS-03-S 3-10-89 1600	=> A1-SW-SS-03-D 3-10-89 1610	=> A1-SW-SS-07-S 3-10-89 1650	=> A1-SW-SS-07-D 3-10-89 1700
SEMIVOLATILE COMPOUNDS						
108-95-2 Phenol	10 U	10 U	10 U	10 U	10 U	10 U
111-44-4 bis(2-Chloroethyl) Ether	10 U	10 U	10 U	10 U	10 U	10 U
95-57-8 2-Chlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
541-73-1 1,3-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
106-46-7 1,4-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
100-51-6 Benzyl Alcohol	10 U	10 U	10 U	10 U	10 U	10 U
95-50-1 1,2-Dichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
95-48-7 2-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U
39638-32-9 bis(2-Chloroisopropyl) Ether	10 U	10 U	10 U	10 U	10 U	10 U
106-44-5 4-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U
621-64-7 N-Nitroso-Di-n-Propylamine	10 U	10 U	10 U	10 U	10 U	10 U
67-72-1 Hexachloroethane	10 U	10 U	10 U	10 U	10 U	10 U
98-95-3 Nitrobenzene	10 U	10 U	10 U	10 U	10 U	10 U
78-59-1 Isophorone	10 U	10 U	10 U	10 U	10 U	10 U
88-75-5 2-Nitrophenol	10 U	10 U	10 U	10 U	10 U	10 U
105-67-9 2,4-Dimethylphenol	10 U	10 U	10 U	10 U	10 U	10 U
65-85-0 Benzoic Acid	50 U	50 U	50 U	50 U	50 U	50 U
111-91-1 bis(2-Chloroethoxy) Methane	10 U	10 U	10 U	10 U	10 U	10 U
120-83-2 2,4-Dichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
120-82-1 1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U
91-20-3 Naphthalene	10 U	10 U	10 U	10 U	10 U	10 U
106-47-8 4-Chloroaniline	10 U	10 U	10 U	10 U	10 U	10 U
87-68-3 Hexachlorobutadiene	10 U	10 U	10 U	10 U	10 U	10 U
59-50-7 4-Chloro-3-Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U
91-57-6 2-Methylnaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
77-47-4 Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U	10 U	10 U
88-06-2 2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U	10 U	10 U
95-95-4 2,4,5-Trichlorophenol	50 U	50 U	50 U	50 U	50 U	50 U
91-58-7 2-Chloronaphthalene	10 U	10 U	10 U	10 U	10 U	10 U
88-74-4 2-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
131-11-3 Dimethyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
208-96-8 Acenaphthylene	10 U	10 U	10 U	10 U	10 U	10 U
99-09-2 3-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
83-32-9 Acenaphthene	10 U	10 U	10 U	10 U	10 U	10 U
51-28-5 2,4-Dinitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
100-02-7 4-Nitrophenol	50 U	50 U	50 U	50 U	50 U	50 U
132-64-9 Dibenzofuran	10 U	10 U	10 U	10 U	10 U	10 U
121-14-2 2,4-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
606-20-2 2,6-Dinitrotoluene	10 U	10 U	10 U	10 U	10 U	10 U
84-66-2 Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
7005-72-3 4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
86-73-7 Fluorene	10 U	10 U	10 U	10 U	10 U	10 U
100-10-6 4-Nitroaniline	50 U	50 U	50 U	50 U	50 U	50 U
534-52-1 4,6-Dinitro-2-Methylphenol	50 U	50 U	50 U	50 U	50 U	50 U
86-30-6 N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U	10 U	10 U
101-55-3 4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U	10 U	10 U
118-74-1 Hexachlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U

SAMPLE SITE INFORMATION AND PARAMETERS

		=> A1-SW-SS-04-D		A1-SW-SS-04-S		A1-SW-SS-03-S		A1-SW-SS-03-D		A1-SW-SS-07-S		A1-SW-SS-07-D	
		SAMPLE DATE		3-10-89		3-10-89		3-10-89		3-10-89		3-10-89	
		SAMPLE TIME		1540		1530		1600		1650		1700	
87-86-5	Pentachlorophenol	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
85-01-8	Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
120-12-7	Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
84-74-2	Di-n-Butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
206-44-0	Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
129-00-0	Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
85-68-7	Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
91-94-1	3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
56-55-3	Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
117-18-7	bis(2-Ethylhexyl)Phthalate	2 J	2 J	10 U	10 U	10 U	10 U	5 J	5 J	5 J	2 J	2 J	2 J
218-01-9	Chrysene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
117-84-0	Di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
205-99-2	Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
207-08-9	Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
50-32-8	Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
193-39-5	Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
53-70-3	Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

UNOILUTED PESTICIDE/PCBs													
319-84-6	Alpha-BHC	0.0067 J	0.0060 J	0.0060 J	0.018 J	0.018 J	0.023 J	0.023 J	0.0053 J	0.0052 J	0.0052 J	0.0052 J	0.0052 J
319-85-7	Beta-BHC	0.0065 J	0.0053 J	0.0053 J	0.0075 J	0.0075 J	0.050 U	0.050 U	0.050 U	0.050 U	0.018 J	0.018 J	0.018 J
319-86-8	Delta-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.028 J	0.028 J	0.026 J	0.026 J	0.026 J
58-89-9	Gamma-BHC(Lindane)	0.0032 J	0.0032 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.0066 J	0.0066 J	0.050 U	0.050 U	0.050 U
76-44-8	Heptachlor	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
309-00-2	Aldrin	0.0030 J	0.0030 J	0.0052 J	0.0083 J	0.0083 J	0.0064 J	0.0064 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
1024-57-3	Heptachlor Epoxide	0.050 U	0.050 U	0.050 U	0.015 J	0.015 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
959-98-8	Endosulfan I	0.050 U	0.050 U	0.050 U	0.0041 J	0.0041 J	0.0046 J	0.0046 J	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
60-57-1	Dieldrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.021 J	0.021 J	0.011 J	0.011 J	0.013 J	0.013 J	0.013 J
72-55-9	4,4'-DDE	0.10 U	0.10 U	0.10 U	0.013 J	0.013 J	0.010 U	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
72-20-8	Endrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
33213-65-9	Endosulfan II	0.10 U	0.10 U	0.10 U	0.037 J	0.037 J	0.019 J	0.019 J	0.013 J	0.013 J	0.013 J	0.013 J	0.013 J
72-54-8	4,4'-DDD	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
1031-07-8	Endosulfan Sulfate	0.089 J	0.089 J	0.081 J	0.90 J	0.90 J	0.084 J	0.084 J	0.067 J	0.067 J	0.068 J	0.068 J	0.068 J
50-29-3	4,4'-DDT	0.0086 J	0.0086 J	0.0079 J	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
72-43-5	Methoxychlor	0.50 U	0.50 U	0.50 U	0.10 J	0.10 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
53494-70-5	Endrin ketone	0.10 U	0.10 U	0.10 U	0.012 J	0.012 J	0.10 U	0.10 U	0.014 J	0.014 J	0.012 J	0.012 J	0.012 J
57-74-9	Chlordane												
5103-71-9	Chlordane-alpha	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
5103-74-2	Chlordane-gamma	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
8001-35-2	Toxaphene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
12674-11-2	Aroclor-1016	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
11104-28-2	Aroclor-1221	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
11141-16-5	Aroclor-1232	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
53469-21-9	Aroclor-1242	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
12672-29-6	Aroclor-1248	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
11097-69-1	Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
11096-82-5	Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

FIELD DATA	SAMPLE I.D.	A1-SW-SS-07-S				A1-SW-SS-07-D				A1-SW-SS-07-S				A1-SW-SS-07-D			
		3-10-89				3-10-89				3-10-89				3-10-89			
	SAMPLE DATE	1720				1730				1750				1810			
	SAMPLE TIME	CH2M HILL				CH2M HILL				CH2M HILL				CH2M HILL			
	SAMPLES	8-80675, 76, 77, 78				8-80679, 80, 81, 82				8-80683, 84, 85, 86				8-80687, 88, 89, 90			
	EPA Tag Nos.	174				210				2				2			
	SPECIFIC CONDUCTANCE	7.5				6.5				7.2				7.2			
	pH																
	EH																
	SNO #	11579				11579				11579				11579			
	SAMPLE METHOD	EDI				EDI				EDI				EDI			
	SAMPLE TYPE	R				R				WB				WB			
	OTR #	HD438				HD439				HD440				HD441			

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

SAMPLE I.D. SAMPLE DATE SAMPLE TIME		=> A1-SW-SS-07-S 3-10-89 1720	A1-SW-SS-07-D 3-10-89 1730	A1-SW-SS-07-S 3-10-89 1750	A1-SW-SS-07-D 3-10-89 1800	A1-SW-SS-07-S 3-10-89 1810	A1-SW-SS-07-D 3-10-89 1820
SEMIVOLATILE COMPOUNDS							
108-95-2	Phenol	10 U	10 U	20 U	10 U	20 U	10 U
111-44-4	bis(2-Chloroethyl)Ether	10 U	10 U	20 U	10 U	20 U	10 U
95-57-8	2-Chlorophenol	10 U	10 U	20 U	10 U	20 U	10 U
541-73-1	1,3-Dichlorobenzene	10 U	10 U	20 U	10 U	20 U	10 U
106-46-7	1,4-Dichlorobenzene	10 U	10 U	20 U	10 U	20 U	10 U
100-51-6	Benzyl Alcohol	10 U	10 U	20 U	10 U	20 U	10 U
95-50-195-50-1,2-Dichlorobenzene		10 U	10 U	20 U	10 U	20 U	10 U
95-48-7	2-Methylphenol	10 U	10 U	20 U	10 U	20 U	10 U
39638-32-9	bis(2-Chloroisopropyl)Ether	10 U	10 U	20 U	10 U	20 U	10 U
106-44-5	4-Methylphenol	10 U	10 U	20 U	10 U	20 U	10 U
621-64-7	N-Nitroso-Di-n-Propylamine	10 U	10 U	20 U	10 U	20 U	10 U
67-72-1	Hexachloroethane	10 U	10 U	20 U	10 U	20 U	10 U
98-95-3	Nitrobenzene	10 U	10 U	20 U	10 U	20 U	10 U
78-59-1	Isophorone	10 U	10 U	20 U	10 U	20 U	10 U
88-75-5	2-Nitrophenol	10 U	10 U	20 U	10 U	20 U	10 U
105-67-9	2,4-Dimethylphenol	10 U	10 U	20 U	10 U	20 U	10 U
65-85-0	Benzoic Acid	50 U	50 U	100 U	50 U	100 U	50 U
111-91-1	bis(2-Chloroethoxy)Methane	10 U	10 U	20 U	10 U	20 U	10 U
120-83-2	2,4-Dichlorophenol	10 U	10 U	20 U	10 U	20 U	10 U
120-82-1	1,2,4-Trichlorobenzene	10 U	10 U	20 U	10 U	20 U	10 U
91-20-3	Naphthalene	10 U	10 U	20 U	10 U	20 U	10 U
106-47-8	4-Chloroaniline	10 U	10 U	20 U	10 U	20 U	10 U
87-68-3	Hexachlorobutadiene	10 U	10 U	20 U	10 U	20 U	10 U
59-50-7	4-Chloro-3-Methylphenol	10 U	10 U	20 U	10 U	20 U	10 U
91-57-6	2-Methylnaphthalene	10 U	10 U	20 U	10 U	20 U	10 U
77-47-4	Hexachlorocyclopentadiene	10 U	10 U	20 U	10 U	20 U	10 U
88-06-2	2,4,6-Trichlorophenol	10 U	10 U	20 U	10 U	20 U	10 U
95-95-4	2,4,5-Trichlorophenol	50 U	50 U	100 U	50 U	100 U	50 U
91-58-7	2-Chloronaphthalene	10 U	10 U	20 U	10 U	20 U	10 U
88-74-4	2-Nitroaniline	50 U	50 U	100 U	50 U	100 U	50 U
131-11-3	Dimethyl Phthalate	10 U	10 U	20 U	10 U	20 U	10 U
208-96-8	Acenaphthylene	10 U	10 U	20 U	10 U	20 U	10 U
99-09-2	3-Nitroaniline	50 U	50 U	100 U	50 U	100 U	50 U
83-32-9	Acenaphthene	10 U	10 U	20 U	10 U	20 U	10 U
51-28-5	2,4-Dinitrophenol	50 U	50 U	100 U	50 U	100 U	50 U
100-02-7	4-Nitrophenol	50 U	50 U	100 U	50 U	100 U	50 U
132-64-9	Dibenzofuran	10 U	10 U	20 U	10 U	20 U	10 U
121-14-2	2,4-Dinitrotoluene	10 U	10 U	20 U	10 U	20 U	10 U
606-20-2	2,6-Dinitrotoluene	10 U	10 U	20 U	10 U	20 U	10 U
84-66-2	Diethylphthalate	10 U	10 U	20 U	10 U	20 U	10 U
7005-72-3	4-Chlorophenyl-phenylether	10 U	10 U	20 U	10 U	20 U	10 U
86-73-7	Fluorene	10 U	10 U	20 U	10 U	20 U	10 U
100-10-6	4-Nitroaniline	50 U	50 U	100 U	50 U	100 U	50 U
534-52-1	4,6-Dinitro-2-Methylphenol	50 U	50 U	100 U	50 U	100 U	50 U
86-30-6	N-Nitrosodiphenylamine (1)	10 U	10 U	20 U	10 U	20 U	10 U
101-55-3	4-Bromophenyl-phenylether	10 U	10 U	20 U	10 U	20 U	10 U
118-74-1	Hexachlorobenzene	10 U	10 U	20 U	10 U	20 U	10 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

SAMPLE I.D. SAMPLE DATE SAMPLE TIME	=> A1-SW-SS-07-S 3-10-89 1720	=> A1-SW-SS-07-D 3-10-89 1730	=> A1-SW-SS-07-S 3-10-89 1750	=> A1-SW-SS-07-D 3-10-89 1800	=> A1-SW-SS-07-S 3-10-89 1810	=> A1-SW-SS-07-D 3-10-89 1820
Pentachlorophenol	50 U	50 U	100 U	50 U	100 U	50 U
Phenanthrene	10 U	10 U	20 U	10 U	20 U	10 U
Anthracene	10 U	10 U	20 U	10 U	20 U	10 U
Di-n-Butylphthalate	10 U	10 U	20 U	10 U	20 U	10 U
Fluoranthene	10 U	10 U	20 U	10 U	20 U	10 U
Pyrene	10 U	10 U	20 U	10 U	20 U	10 U
Butylbenzylphthalate	10 U	10 U	20 U	10 U	20 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	40 U	20 U	40 U	20 U
Benzo(a)Anthracene	10 U	10 U	20 U	10 U	20 U	10 U
bis(2-Ethylhexyl)Phthalate	10 U	10 U	20 U	10 U	20 U	10 U
Chrysene	10 U	10 U	20 U	10 U	20 U	10 U
Di-n-Octyl Phthalate	10 U	10 U	20 U	10 U	20 U	10 U
Benzo(b)Fluoranthene	10 U	10 U	20 U	10 U	20 U	10 U
Benzo(k)Fluoranthene	10 U	10 U	20 U	10 U	20 U	10 U
Benzo(a)Pyrene	10 U	10 U	20 U	10 U	20 U	10 U
Indeno(1,2,3-cd)Pyrene	10 U	10 U	20 U	10 U	20 U	10 U
Dibenz(a,h)Anthracene	10 U	10 U	20 U	10 U	20 U	10 U
Benzo(g,h,i)Perylene	10 U	10 U	20 U	10 U	20 U	10 U

UNDILUTED PESTICIDE/PCBS

319-84-6	Alpha-BHC	0.0059 J	0.0055 J	0.1 U	0.050 U	0.10 U	0.050 U
319-85-7	Beta-BHC	0.051 U	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
319-86-8	Delta-BHC	0.032 J	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
58-89-9	Gamma-BHC(Lindane)	0.0073 J	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
76-44-8	Heptachlor	0.051 U	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
309-00-2	Aldrin	0.051 U	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
1024-57-3	Heptachlor Epoxide	0.051 U	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
959-98-8	Endosulfan I	0.051 U	0.050 U	0.1 U	0.050 U	0.10 U	0.050 U
60-57-1	Dieldrin	0.011 J	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
72-55-9	4,4'-DDE	0.10 U	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
72-20-8	Endrin	0.10 U	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
33213-65-9	Endosulfan II	0.011 J	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
72-54-8	4,4'-DDD	0.10 U	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
1031-07-8	Endosulfan Sulfate	0.073 J	0.072 J	0.2 U	0.10 U	0.20 U	0.10 U
50-29-3	4,4'-DDT	0.10 U	0.10 U	0.2 U	0.10 U	0.20 U	0.10 U
72-43-5	Methoxychlor	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
53494-70-5	Endrin Ketone	0.10 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
57-74-9	Chlordane	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
5103-71-9	Chlordane-alpha	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
5103-74-2	Chlordane-gamma	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U
8001-35-2	Toxaphene	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
12674-11-2	Aroclor-1016	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
11104-28-2	Aroclor-1221	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
11141-16-5	Aroclor-1232	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
53469-21-9	Aroclor-1242	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
12672-29-6	Aroclor-1248	0.51 U	0.50 U	1.0 U	0.50 U	1.0 U	0.50 U
11097-69-1	Aroclor-1254	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U
11096-82-5	Aroclor-1260	1.0 U	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U

COMPONENT CONCENTRATION (ug/L)

SAMPLE SITE INFORMATION AND PARAMETERS

SAMPLE I.D.	A1-SW-SS-03	A1-SW-SS-03	A1-SW-SS-03	A1-SW-SS-04	A1-SW-SS-04	A1-SW-SS-04
SAMPLE DATE	8-22-89	8-22-89	8-22-89	8-22-89	8-22-89	8-22-89
SAMPLE TIME	1330	1400	1415	1530	1615	1645
SAMPLERS	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
EPA Tag Nos.	8-94301, 8-94302	8-94307, 8-94308	8-94313, 8-94314	8-94319, 8-94320	8-94325, 8-94326	8-94331, 8-94332
SPECIFIC CONDUCTANCE	1537	1540	239.8	239.8	239.6	282.5
pH	6.29	6.32	7.02	7.02	7.04	7.25
EH						
SNO #	12607	12607	12607	12607	12607	12607
SAMPLE METHOD	EDI	EDI	EDI	EDI	EDI	EDI
SAMPLE TYPE	N	N	WB	N	N	R
OTR #	HC432	HC433	HC434	HC435	HC436	HC437

FIELD DATA

CAS NO. COMPONENT

VOLATILE COMPOUNDS

74-87-3	Chloromethane	10 U	10 U	10 U	10 U	10 U
74-83-9	Bromomethane	10 U	10 U	10 U	10 U	10 U
75-01-4	Vinyl Chloride	10 U	10 U	10 U	10 U	10 U
75-00-3	Chloroethane	10 U	10 U	10 U	10 U	10 U
75-09-2	Methylene Chloride	8.8	10.8	12.8	5 U	5 U
67-64-1	Acetone	10 U	10 U	19	10 U	10 U
75-15-0	Carbon Disulfide	5 U	5 U	5 U	5 U	5 U
75-35-4	1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
75-34-3	1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
540-59-0	1,2-Dichloroethane (total)	5 U	5 U	5 U	5 U	5 U
67-66-3	Chloroform	5 U	5 U	1 J	7	8
107-06-2	1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U
78-93-3	2-Butanone	10 U	10 U	10 U	10 U	10 U
71-55-6	1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U
56-23-5	Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U
108-05-4	Vinyl Acetate	10 U	10 U	10 U	10 U	10 U
75-27-4	Bromodichloromethane	5 U	5 U	5 U	5 U	5 U
78-87-5	1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
10061-02-6	Trans-1,3-Dichloroprene	5 U	5 U	5 U	5 U	5 U
79-01-6	Trichloroethene	5 U	5 U	5 U	5 U	5 U
124-48-1	Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
79-00-5	1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U
71-43-2	Benzene	5 U	5 U	5 U	5 U	5 U
10061-01-5	cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
110-75-8	2-Chloroethylvinylether					
75-25-2	Bromoform	5 U	5 U	5 U	5 U	5 U
591-78-6	2-Hexanone	10 U	10 U	10 U	10 U	10 U
108-10-1	4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	10 U
127-18-4	Tetrachloroethene	5 U	5 U	5 U	5 U	5 U
79-34-5	1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
108-88-3	Toluene	5 U	5 U	5 U	5 U	5 U
108-90-7	Chlorobenzene	1 J	5 U	5 U	5 U	5 U
100-41-4	Ethylbenzene	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	5 U	5 U	5 U	5 U	5 U
1330-20-7	Total Xylenes	5 U	5 U	5 U	5 U	5 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

< ----->
=> A1-SW-SS-03 1330
=> 8-22-89
=> 1530

A1-SW-SS-04
8-22-89
1615

A1-SW-SS-04
8-22-89
1645

SEMI-VOLATILE COMPOUNDS

SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	A1-SW-SS-03 8-22-89 1400	A1-SW-SS-03 8-22-89 1415	A1-SW-SS-04 8-22-89 1615	A1-SW-SS-04 8-22-89 1645
108-95-2	Phenol		10 U	10 U	10 U	10 U
111-44-4	bis(2-Chloroethyl) Ether		10 U	10 U	10 U	10 U
95-57-8	2-Chlorophenol		10 U	10 U	10 U	10 U
541-73-1	1,3-Dichlorobenzene		10 U	10 U	10 U	10 U
106-46-7	1,4-Dichlorobenzene		10 U	10 U	10 U	10 U
100-51-6	Benzyl Alcohol		10 U	10 U	10 U	10 U
95-50-195-50-1	2-Dichlorobenzene		10 U	10 U	10 U	10 U
95-48-7	2-Methylphenol		10 U	10 U	10 U	10 U
39638-32-9	bis(2-Chloroisopropyl) Ether		10 U	10 U	10 U	10 U
106-44-5	4-Methylphenol		10 U	10 U	10 U	10 U
621-64-7	N-Nitroso-Di-n-Propylamine		10 U	10 U	10 U	10 U
67-72-1	Hexachloroethane		10 U	10 U	10 U	10 U
98-95-3	Nitrobenzene		10 U	10 U	10 U	10 U
78-59-1	Isophorone		10 U	10 U	10 U	10 U
88-75-5	2-Nitrophenol		10 U	10 U	10 U	10 U
105-67-9	2,4-Dimethylphenol		10 U	10 U	10 U	10 U
65-85-0	Benzoic Acid		50 UJJ	50 UJJ	50 UJJ	50 UJJ
111-91-1	bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U
120-83-2	2,4-Dichlorophenol		10 U	10 U	10 U	10 U
120-82-1	1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U
91-20-3	Naphthalene		10 U	10 U	10 U	10 U
106-47-8	4-Chloroaniline		10 U	10 U	10 U	10 U
87-68-3	Hexachlorobutadiene		10 U	10 U	10 U	10 U
59-50-7	4-Chloro-3-Methylphenol		10 U	10 U	10 U	10 U
91-57-6	2-Methylnaphthalene		10 U	10 U	10 U	10 U
77-47-4	Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U
88-06-2	2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U
95-95-4	2,4,5-Trichlorophenol		50 U	50 U	50 U	50 U
91-58-7	2-Chloronaphthalene		10 U	10 U	10 U	10 U
88-74-4	2-Nitroaniline		50 U	50 U	50 U	50 U
131-11-3	Dimethyl Phthalate		10 U	10 U	10 U	10 U
208-96-8	Acenaphthylene		10 U	10 U	10 U	10 U
99-09-2	3-Nitroaniline		50 U	50 U	50 U	50 U
83-32-9	Acenaphthene		10 U	10 U	10 U	10 U
51-28-5	2,4-Dinitrophenol		50 UJJ	50 UJJ	50 UJJ	50 UJJ
100-02-7	4-Nitrophenol		50 U	50 U	50 U	50 U
132-64-9	Dibenzofuran		10 U	10 U	10 U	10 U
121-14-2	2,4-Dinitrotoluene		10 U	10 U	10 U	10 U
606-20-2	2,6-Dinitrotoluene		10 U	10 U	10 U	10 U
84-66-2	Diethylphthalate		10 U	10 U	10 U	10 U
7005-72-3	4-Chlorophenyl-phenylether		10 U	10 U	10 U	10 U
86-73-7	Fluorene		10 U	10 U	10 U	10 U
100-10-6	4-Nitroaniline		50 U	50 U	50 U	50 U
534-52-1	4,6-Dinitro-2-Methylphenol		50 UJJ	50 UJJ	50 UJJ	50 UJJ
86-30-6	N-Nitrosodiphenylamine (1)		10 U	10 U	10 U	10 U
101-55-3	4-Bromophenyl-phenylether		10 U	10 U	10 U	10 U
118-74-1	Hexachlorobenzene		10 U	10 U	10 U	10 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

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SAMPLE I.D.	A1-SW-SS-03	A1-SW-SS-03	A1-SW-SS-03	A1-SW-SS-04	A1-SW-SS-04
SAMPLE DATE	8-22-89	8-22-89	8-22-89	8-22-89	8-22-89
SAMPLE TIME	1330	1400	1415	1530	1615
87-86-5	50 U	50 U	50 U	50 U	50 U
85-01-8	10 U	10 U	10 U	10 U	10 U
120-12-7	10 U	10 U	10 U	10 U	10 U
84-74-2	1 J	1 J	1 J	9 J	1 J
206-44-0	10 U	10 U	10 U	10 U	10 U
129-00-0	10 U	10 U	10 U	10 U	10 U
85-68-7	10 U	10 U	10 U	10 U	10 U
91-94-1	20 U	20 U	20 U	20 U	20 U
56-55-3	10 U	10 U	10 U	10 U	10 U
117-18-7	3 BJ	10 U	2 BJ	3 BJ	2 BJ
218-01-9	10 U	10 U	10 U	10 U	10 U
117-84-0	10 U	10 U	10 U	10 U	10 U
205-99-2	10 U	10 U	10 U	10 U	10 U
207-08-9	10 U	10 U	10 U	10 U	10 U
50-32-8	10 U	10 U	10 U	10 U	10 U
193-39-5	10 U	10 U	10 U	10 U	10 U
53-70-3	10 U	10 U	10 U	10 U	10 U
191-24-2	10 U	10 U	10 U	10 U	10 U

UNADULTED PESTICIDE/PCBS

319-84-6	Alpha-BHC	.05 U	.05 U	.05 U	.05 U
319-85-7	Beta-BHC	.05 U	.05 U	.05 U	.05 U
319-86-8	Delta-BHC	.05 U	.05 U	.05 U	.05 U
58-89-9	Gamma-BHC(Lindane)	.05 U	.05 U	.05 U	.05 U
76-44-8	Heptachlor	.05 U	.05 U	.05 U	.05 U
309-00-2	Aldrin	.05 U	.05 U	.05 U	.05 U
1024-57-3	Heptachlor Epoxide	.05 U	.05 U	.05 U	.05 U
959-98-8	Endosulfan I	.05 U	.05 U	.05 U	.05 U
60-57-1	Dieldrin	.1 U	.1 U	.1 U	.1 U
72-55-9	4,4'-DDE	.1 U	.1 U	.1 U	.1 U
72-20-8	Endrin	.1 U	.1 U	.1 U	.1 U
33213-65-9	Endosulfan II	.1 U	.1 U	.1 U	.1 U
72-54-8	4,4'-DDO	.1 U	.1 U	.1 U	.1 U
1031-07-8	Endosulfan Sulfate	.1 U	.1 U	.1 U	.1 U
50-29-3	4,4'-DDT	.1 U	.1 U	.1 U	.1 U
72-43-5	Methoxychlor	.5 U	.5 U	.5 U	.5 U
53494-70-5	Endrin Ketone	.1 U	.1 U	.1 U	.1 U
57-74-9	Chlordane	.5 U	.5 U	.5 U	.5 U
5103-71-9	Chlordane-alpha	.5 U	.5 U	.5 U	.5 U
5103-74-2	Chlordane-gamma	1 U	1 U	1 U	1 U
8001-35-2	Toxaphene	.5 U	.5 U	.5 U	.5 U
12674-11-2	Aroclor-1016	.5 U	.5 U	.5 U	.5 U
11104-28-2	Aroclor-1221	.5 U	.5 U	.5 U	.5 U
11141-16-5	Aroclor-1232	.5 U	.5 U	.5 U	.5 U
53469-21-9	Aroclor-1242	.5 U	.5 U	.5 U	.5 U
12672-29-6	Aroclor-1248	.5 U	.5 U	.5 U	.5 U
11097-69-1	Aroclor-1254	1 U	1 U	1 U	1 U
11096-82-5	Aroclor-1260	1 U	1 U	1 U	1 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

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SAMPLE I.D.	A1-SW-SS04	A1-SW-SS-04	A1-SW-SS-04	A1-SW-SS-07	A1-SW-SS-07
SAMPLE DATE	8-22-89	8-22-89	8-22-89	8-22-89	8-22-89
SAMPLE TIME	1800	1845	1900	1930	2015
SAMPLERS	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL	CH2M HILL
EPA Tag Nos.	8-94337, 8-94338	8-94343, 8-94344	8-94401, 8-94402	8-93413, 8-94414	8-94431, 8-94432
SPECIFIC CONDUCTANCE	281.75			406	406
pH	7.29			6.48	6.48
EH					
SNO #	12607	12607	12607	12607	12607
SAMPLE METHOD	EDI	EDI	EDI	EDI	EDI
SAMPLE TYPE	R	WB	BB	N	N
OTR #	HC438	HC439	HC440	HC442	HC443

CAS NO. COMPONENT

VOLATILE COMPOUNDS

74-87-3	Chloromethane	10 U	10 U	10 U	10 U	10 U
74-83-9	Bromomethane	10 U	10 U	10 U	10 U	10 U
75-01-4	Vinyl Chloride	10 U	10 U	10 U	10 U	10 U
75-00-3	Chloroethane	10 U	10 U	10 U	10 U	10 U
75-09-2	Methylene Chloride	5 U	.9 BJ	5 U	5 B	5 U
67-64-1	Acetone	10 U	10 U	10 U	10 U	10 U
75-15-0	Carbon Disulfide	5 U	5 U	5 U	5 U	5 U
75-35-4	1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U
75-34-3	1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U
540-59-0	1,2-Dichloroethene (total)	5 U	5 U	5 U	5 U	5 U
67-66-3	Chloroform	7	1 J	5 U	6	6
107-06-2	1,2-Dichloroethane	5 U	5 U	5 U	5 U	5 U
78-93-3	2-Butanone	10 U	10 U	10 U	10 U	10 U
71-55-6	1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U
56-23-5	Carbon Tetrachloride	5 U	5 U	5 U	5 U	5 U
108-05-4	Vinyl Acetate	10 U	10 U	10 U	10 U	10 U
75-27-4	Bromodichloromethane	5 U	5 U	5 U	5 U	5 U
78-87-5	1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U
10061-02-6	Trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
79-01-6	Trichloroethene	5 U	5 U	5 U	5 U	5 U
124-48-1	Dibromochloromethane	5 U	5 U	5 U	5 U	5 U
79-00-5	1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U
71-43-2	Benzene	5 U	5 U	5 U	5 U	5 U
10061-01-5	cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U
110-75-8	2-Chloroethylvinylether					
75-25-2	Bromoform	5 U	5 U	5 U	5 U	5 U
591-78-6	2-Hexanone	10 U	10 U	10 U	10 U	10 U
108-10-1	4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	10 U
127-18-4	Tetrachloroethene	5 U	5 U	5 U	5 U	5 U
79-34-5	1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U
108-88-3	Toluene	5 U	.9 BJ	5 U	5 U	5 U
108-90-7	Chlorobenzene	5 U	.2 J	5 U	5 U	5 U
100-41-4	Ethylbenzene	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	5 U	5 U	5 U	5 U	5 U
1330-20-7	Total Xylenes	5 U	5 U	5 U	5 U	5 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

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SEMIVOLATILE COMPOUNDS		==>	A1-SW-SS04 8-22-89 1800	A1-SW-SS-04 8-22-89 1845	A1-SW-SS-04 8-22-89 1900	A1-SW-SS-04 8-22-89 1915	A1-SW-SS-07 8-22-89 1930	A1-SW-SS-07 8-22-89 2015
SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME						
108-95-2	Phenol		10 U	5 J	10 U	10 U	10 U	10 U
111-44-4	bis(2-Chloroethyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
95-57-8	2-Chlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
541-73-1	1,3-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
106-46-7	1,4-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
100-51-6	Benzyl Alcohol		10 U	10 U	10 U	10 U	10 U	10 U
95-50-1	1,2-Dichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
95-48-7	2-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
39638-32-9	bis(2-Chloroisopropyl)Ether		10 U	10 U	10 U	10 U	10 U	10 U
106-44-5	4-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
621-64-7	N-Nitroso-Di-n-Propylamine		10 U	10 U	10 U	10 U	10 U	10 U
67-72-1	Hexachloroethane		10 U	10 U	10 U	10 U	10 U	10 U
98-95-3	Nitrobenzene		10 U	10 U	10 U	10 U	10 U	10 U
78-59-1	Isophorone		10 U	10 U	10 U	10 U	10 U	10 U
88-75-5	2-Nitrophenol		10 U	10 U	10 U	10 U	10 U	10 U
105-67-9	2,4-Dimethylphenol		10 U	10 U	10 U	10 U	10 U	10 U
65-85-0	Benzoic Acid		50 U	50 U	50 U	50 U	50 U	50 U
111-91-1	bis(2-Chloroethoxy)Methane		10 U	10 U	10 U	10 U	10 U	10 U
120-83-2	2,4-Dichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
120-82-1	1,2,4-Trichlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U
91-20-3	Naphthalene		10 U	10 U	10 U	10 U	10 U	10 U
106-47-8	4-Chloroaniline		10 U	10 U	10 U	10 U	10 U	10 U
87-68-3	Hexachlorobutadiene		10 U	10 U	10 U	10 U	10 U	10 U
59-50-7	4-Chloro-3-Methylphenol		10 U	10 U	10 U	10 U	10 U	10 U
91-57-6	2-Methylnaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
77-47-4	Hexachlorocyclopentadiene		10 U	10 U	10 U	10 U	10 U	10 U
88-06-2	2,4,6-Trichlorophenol		10 U	10 U	10 U	10 U	10 U	10 U
95-95-4	2,4,5-Trichlorophenol		50 U	50 U	50 U	50 U	50 U	50 U
91-58-7	2-Chloronaphthalene		10 U	10 U	10 U	10 U	10 U	10 U
88-74-4	2-Nitroaniline		50 U	50 U	50 U	50 U	50 U	50 U
131-11-3	Dimethyl Phthalate		10 U	10 U	10 U	10 U	10 U	10 U
208-96-8	Acenaphthylene		10 U	10 U	10 U	10 U	10 U	10 U
99-09-2	3-Nitroaniline		50 U	50 U	50 U	50 U	50 U	50 U
83-32-9	Acenaphthene		10 U	10 U	10 U	10 U	10 U	10 U
51-28-5	2,4-Dinitrophenol		50 U	50 U	50 U	50 U	50 U	50 U
100-02-7	4-Nitrophenol		50 U	50 U	50 U	50 U	50 U	50 U
132-64-9	Dibenzofuran		10 U	10 U	10 U	10 U	10 U	10 U
121-14-2	2,4-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U
606-20-2	2,6-Dinitrotoluene		10 U	10 U	10 U	10 U	10 U	10 U
84-66-2	Diethylphthalate		10 U	10 U	10 U	10 U	10 U	10 U
7005-72-3	4-Chlorophenyl-phenylether		10 U	10 U	10 U	10 U	10 U	10 U
86-73-7	Fluorene		10 U	10 U	10 U	10 U	10 U	10 U
100-10-6	4-Nitroaniline		50 U	50 U	50 U	50 U	50 U	50 U
534-52-1	4,6-Dinitro-2-Methylphenol		50 U	50 U	50 U	50 U	50 U	50 U
86-30-6	N-Nitrosodiphenylamine (1)		10 U	10 U	10 U	10 U	10 U	10 U
101-55-3	4-Bromophenyl-phenylether		10 U	10 U	10 U	10 U	10 U	10 U
118-74-1	Hexachlorobenzene		10 U	10 U	10 U	10 U	10 U	10 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	SAMPLE I.D. SAMPLE DATE SAMPLE TIME	=> A1-SW-SS04 8-22-89 1800	=> A1-SW-SS-04 8-22-89 1845	=> A1-SW-SS-04 8-22-89 1900	=> A1-SW-SS-04 8-22-89 1915	=> A1-SW-SS-07 8-22-89 1930	=> A1-SW-SS-07 8-22-89 2015
87-86-5	Pentachlorophenol	50 U	50 U	50 U	50 U	19 J	17 J
85-01-8	Phenanthrene	10 U	10 U	10 U	10 U	10 U	10 U
120-12-7	Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
84-74-2	Di-n-Butylphthalate	1 J	.6 J	.9 J	.6 J	1 J	1 J
206-44-0	Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
129-00-0	Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
85-68-7	Butylbenzylphthalate	10 U	10 U	10 U	10 U	10 U	10 U
91-94-1	3,3'-Dichlorobenzidine	20 U	20 U	20 U	20 U	20 U	20 U
56-55-3	Benzo(a)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
117-18-7	bis(2-Ethylhexyl)Phthalate	1 8J	2 8J	4 8J	1 8J	1 8J	2 8J
218-01-9	Chrysene	10 U	10 U	10 U	10 U	10 U	10 U
117-84-0	Di-n-Octyl Phthalate	10 U	10 U	10 U	10 U	10 U	10 U
205-99-2	Benzo(b)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
207-08-9	Benzo(k)Fluoranthene	10 U	10 U	10 U	10 U	10 U	10 U
50-32-8	Benzo(a)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
193-39-5	Indeno(1,2,3-cd)Pyrene	10 U	10 U	10 U	10 U	10 U	10 U
53-70-3	Dibenz(a,h)Anthracene	10 U	10 U	10 U	10 U	10 U	10 U
191-24-2	Benzo(g,h,i)Perylene	10 U	10 U	10 U	10 U	10 U	10 U

UNDILUTED PESTICIDE/POBS							
319-84-6	Alpha-BHC	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
319-85-7	Beta-BHC	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
319-86-8	Delta-BHC	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
58-89-9	Gamma-BHC(Lindane)	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
76-44-8	Heptachlor	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
309-00-2	Aldrin	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
1024-57-3	Heptachlor Epoxide	.52 U	.05 U	.05 U	.05 U	.05 U	.05 U
959-98-8	Endosulfan I	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
60-57-1	Dieldrin	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
72-55-9	4,4'-DDE	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
72-20-8	Endrin	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
33213-65-9	Endosulfan II	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
72-54-8	4,4'-DDD	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
1031-07-8	Endosulfan Sulfate	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
50-29-3	4,4'-DDT	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
72-43-5	Methoxychlor	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
53494-70-5	Endrin Ketone	.1 U	.1 U	.1 U	.1 U	.1 U	.1 U
57-74-9	Chlordane	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
5103-71-9	Chlordane-alpha	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
5103-74-2	Chlordane-gamma	1 U	1 U	1 U	1 U	1 U	1 U
8001-35-2	Toxaphene	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
12674-11-2	Aroclor-1016	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
11104-28-2	Aroclor-1221	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
11141-16-5	Aroclor-1232	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
53469-21-9	Aroclor-1242	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
12672-29-6	Aroclor-1248	.52 U	.5 U	.5 U	.5 U	.5 U	.5 U
11097-69-1	Aroclor-1254	1 U	1 U	1 U	1 U	1 U	1 U
11096-82-5	Aroclor-1260	1 U	1 U	1 U	1 U	1 U	1 U

SAMPLE SITE INFORMATION AND PARAMETERS

=>	A1-SW-SS-07	A1-SW-
=>	8-22-89	8-22-89
=>	2030	

COMPONENT CONCENTRATION (ug/L)
----- SAMPLE SITE INFORMATION AND PARAMETERS ----->

	SAMPLE I.D.	=>	A1-SW-SS-07 8-22-89 2030	=>	A1-SW- 8-22-89	=>
87-86-5	Pentachlorophenol				50 U	
85-01-8	Phenanthrene				10 U	
120-12-7	Anthracene				10 U	
84-74-2	Di-n-Butylphthalate				10 U	
206-44-0	Fluoranthene				10 U	
129-00-0	Pyrene				10 U	
85-68-7	Butylbenzylphthalate				10 U	
91-94-1	3,3'-Dichlorobenzidine				10 U	
56-55-3	Benzo(a)Anthracene				10 U	
117-18-7	bis(2-Ethylhexyl)Phthalate				39	
218-01-9	Chrysene				10 U	
117-84-0	Di-n-Octyl Phthalate				10 U	
205-99-2	Benzo(b)Fluoranthene				10 U	
207-08-9	Benzo(k)Fluoranthene				10 U	
50-32-8	Benzo(a)Pyrene				30	
193-39-5	Indeno(1,2,3-cd)Pyrene				10 U	
53-70-3	Dibenz(a,h)Anthracene				10 U	
191-24-2	Benzo(g,h,i)Perylene				10 U	

APPENDIX B-1

Surface Resistivity Geophysical Data

SOUNDING A-1

1000

APPARENT RESISTIVITY (OHM-FT)

100

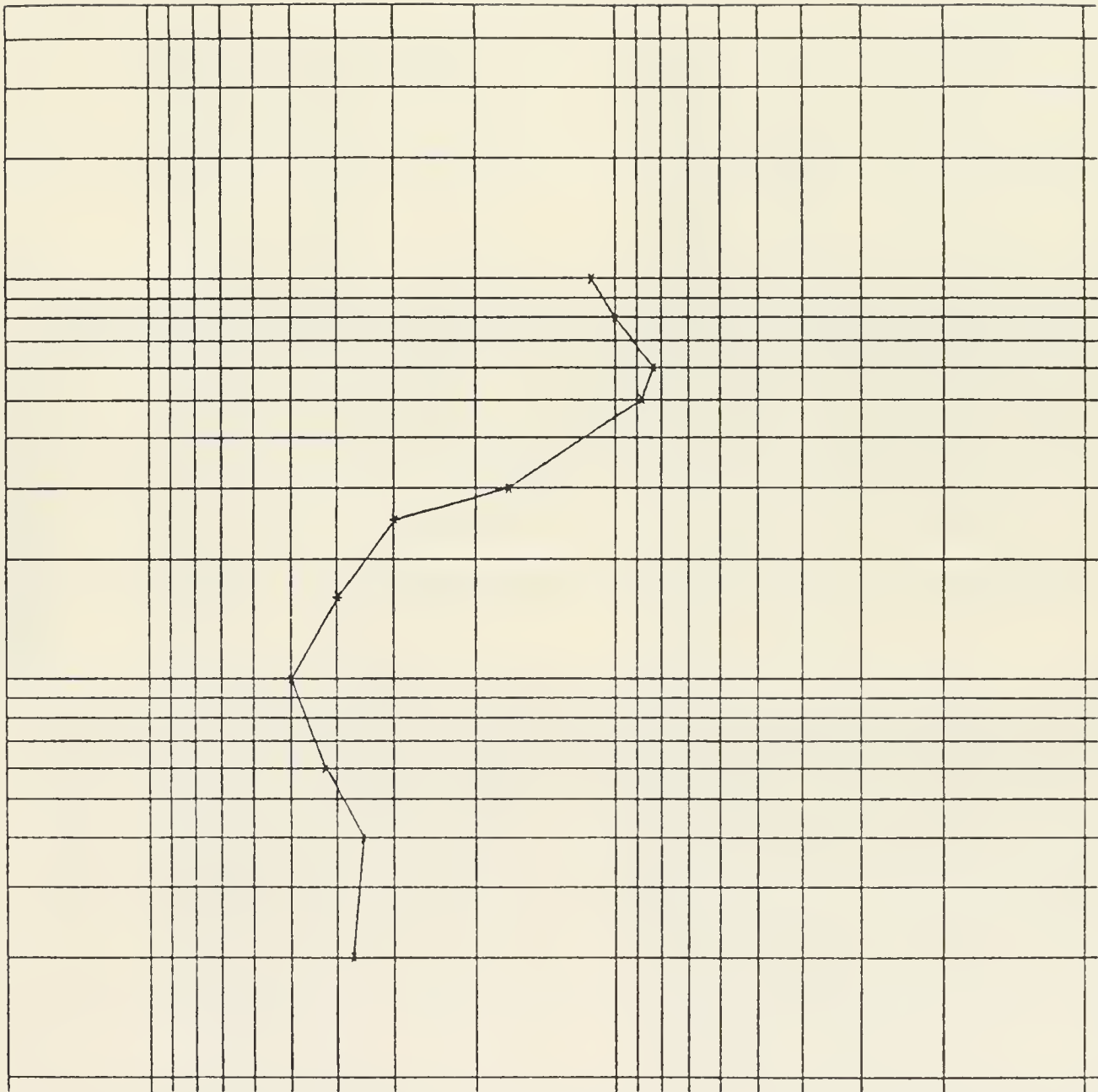
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A-SPACING (FT)

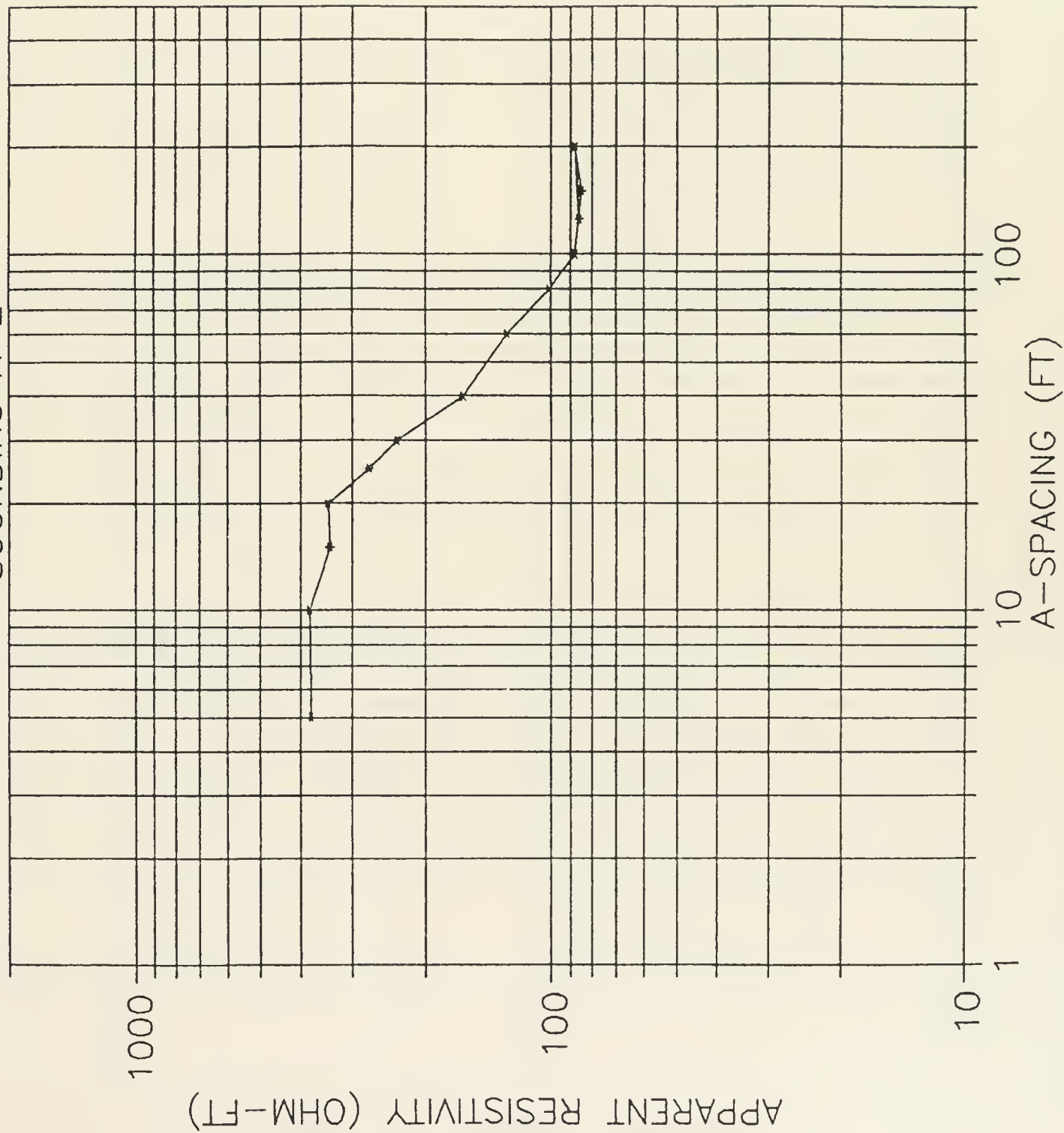
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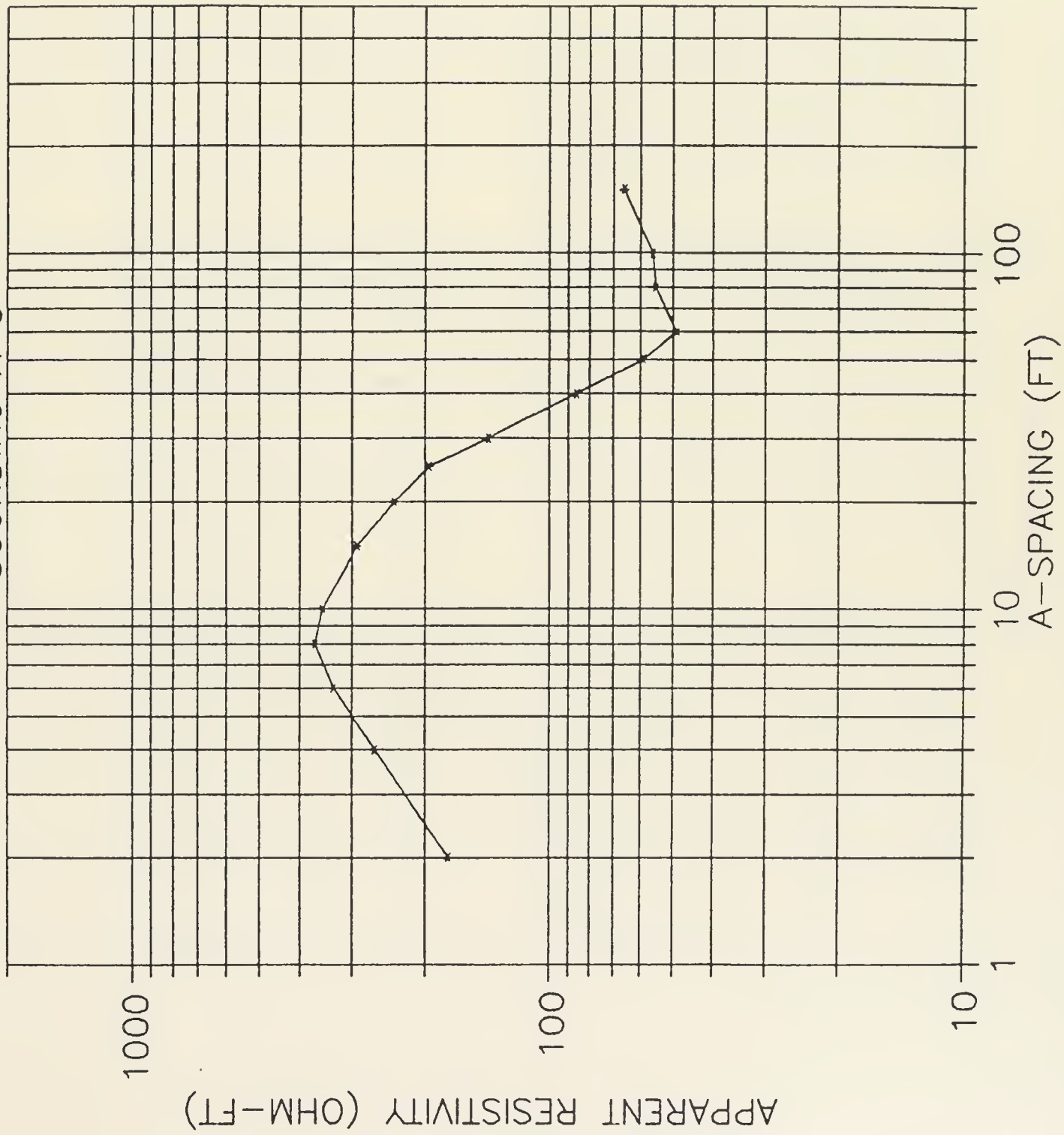
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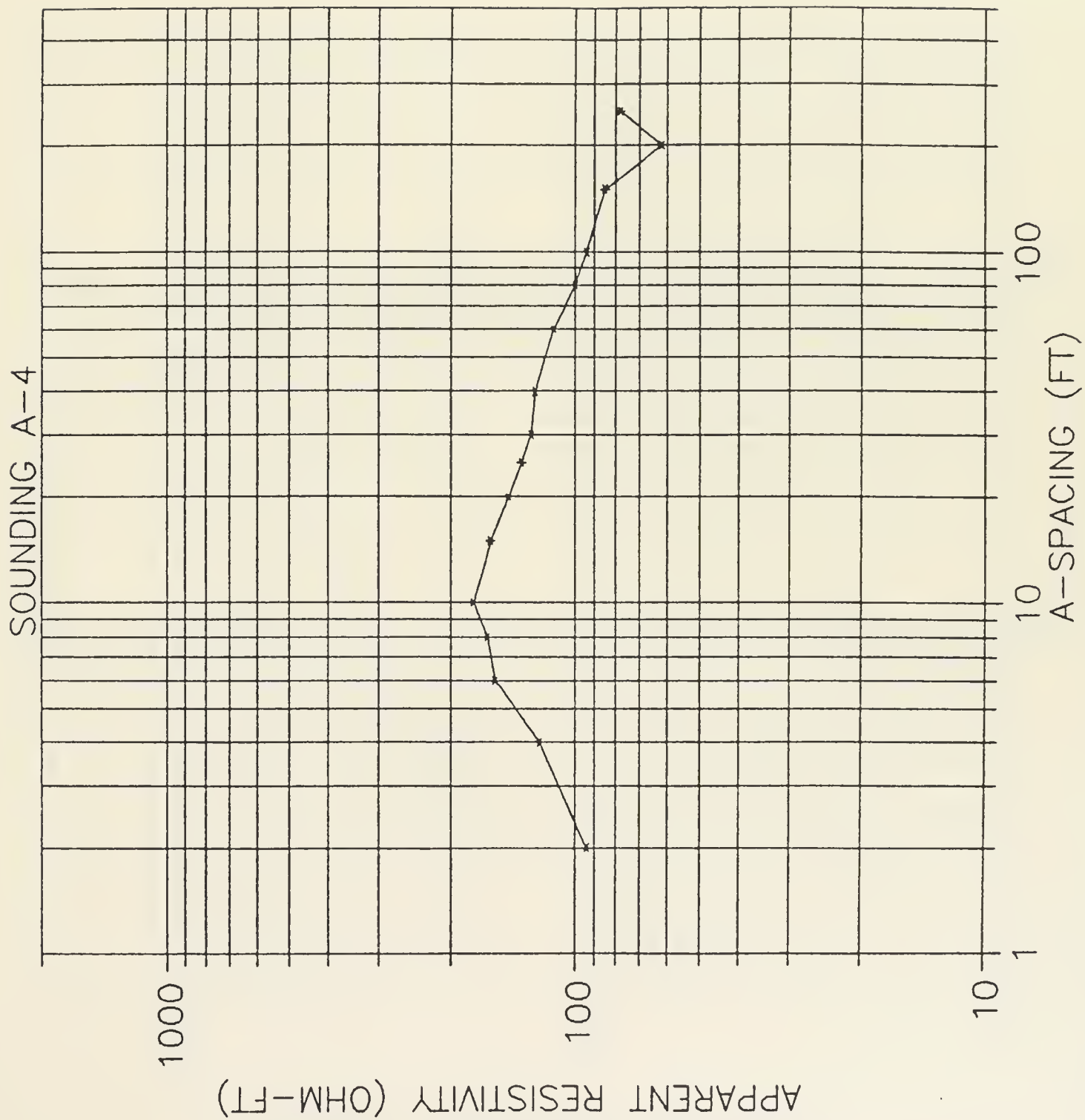


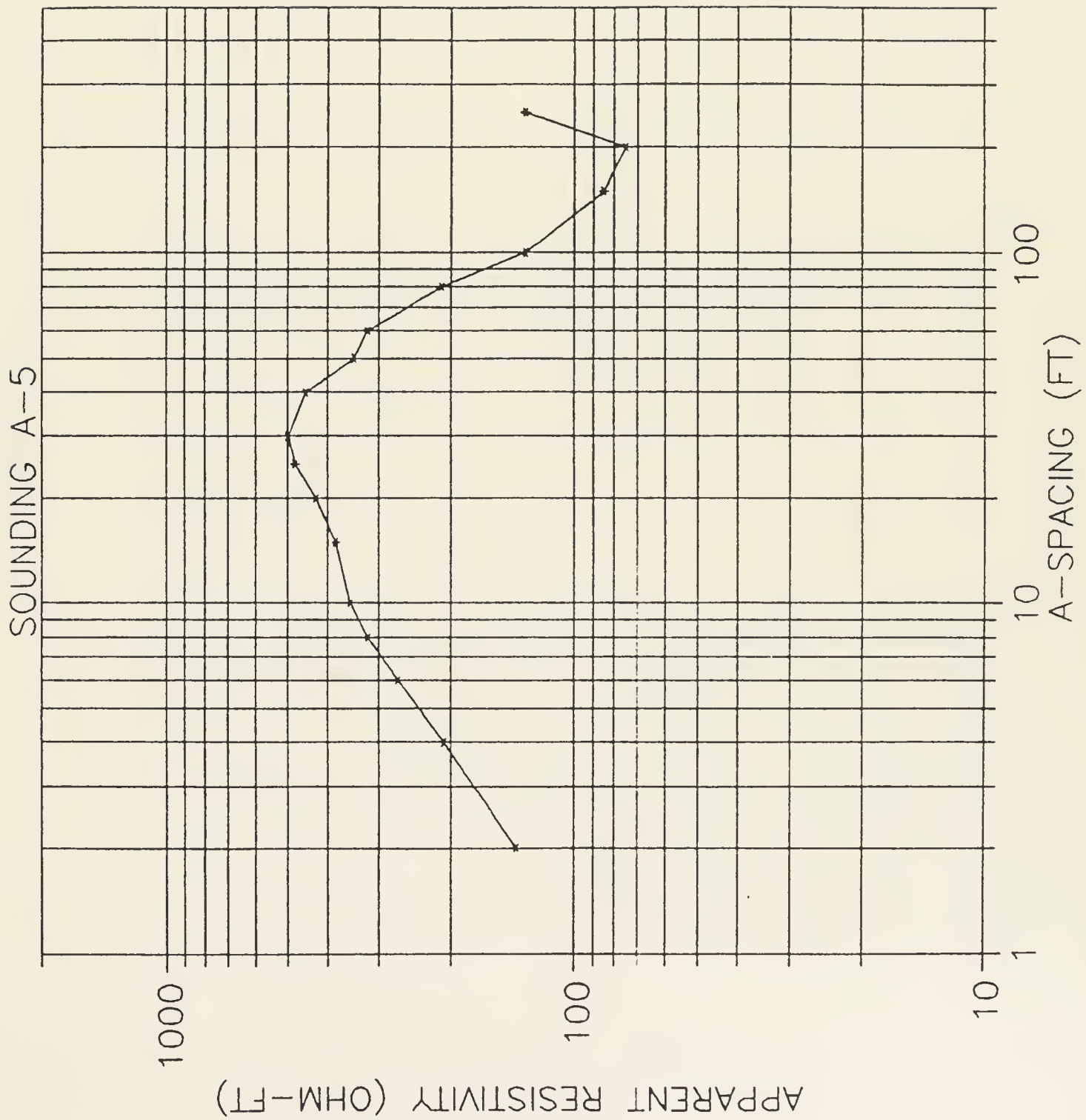
SOUNDING A-2



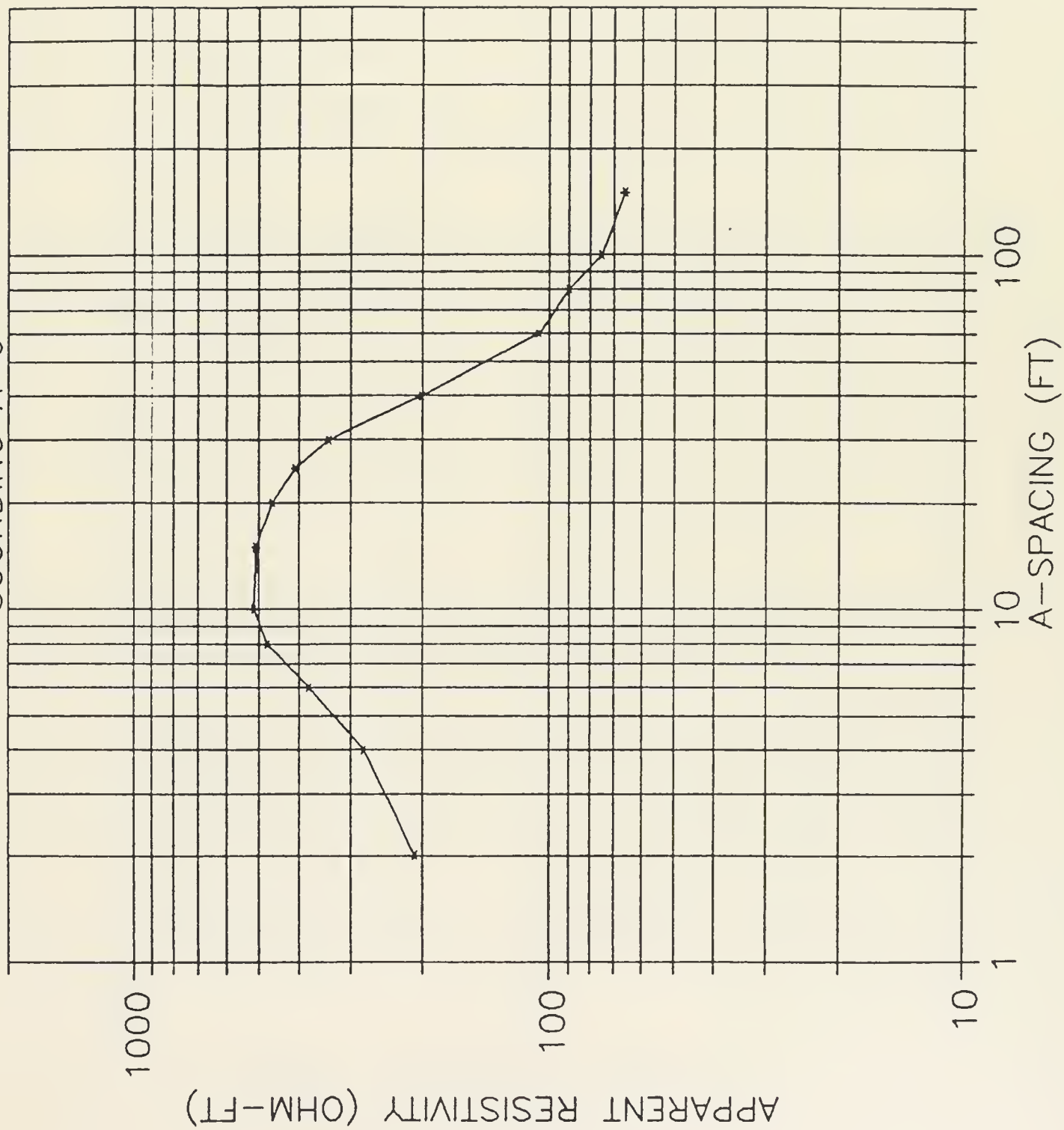
SOUNDING A-3



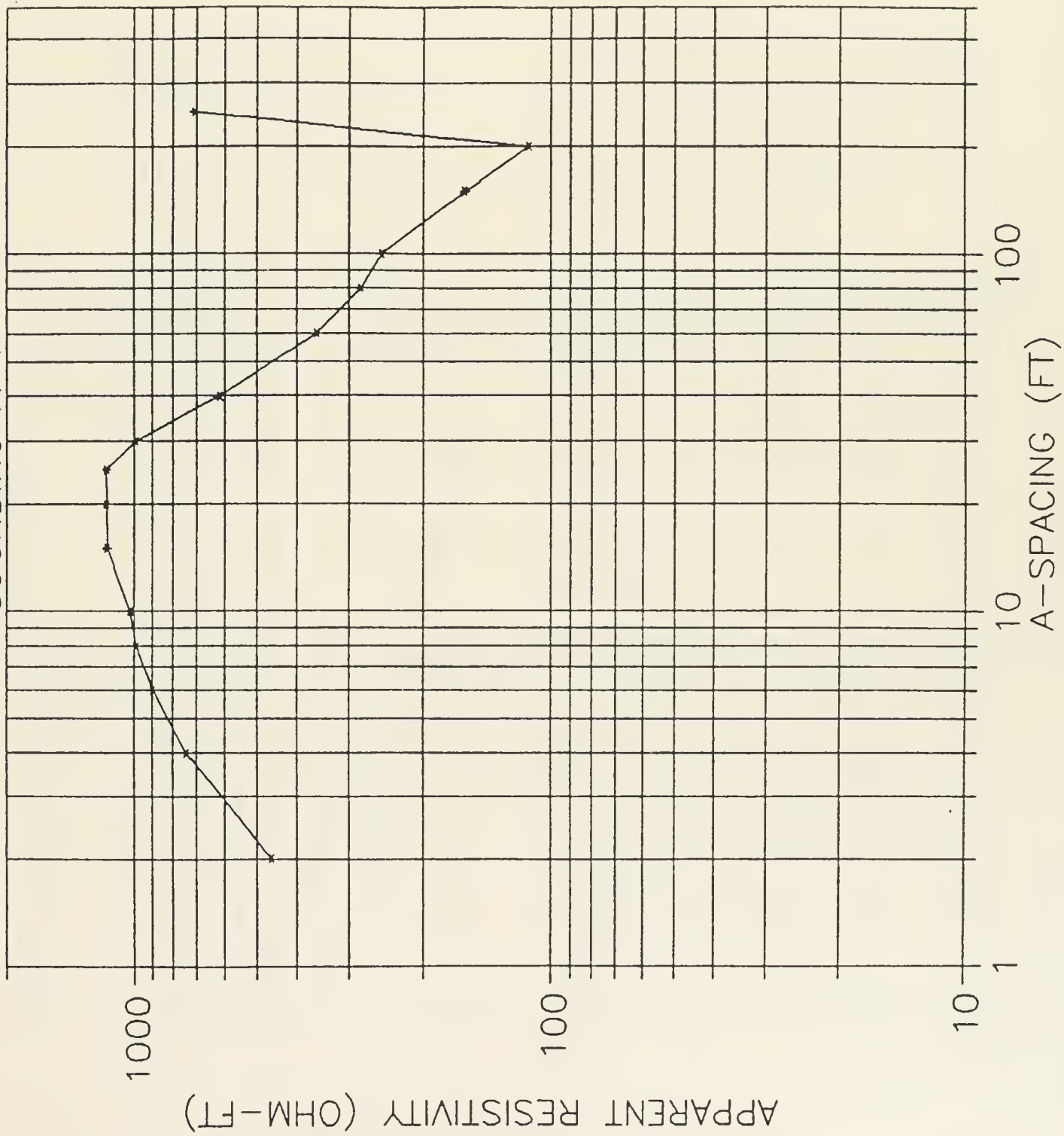


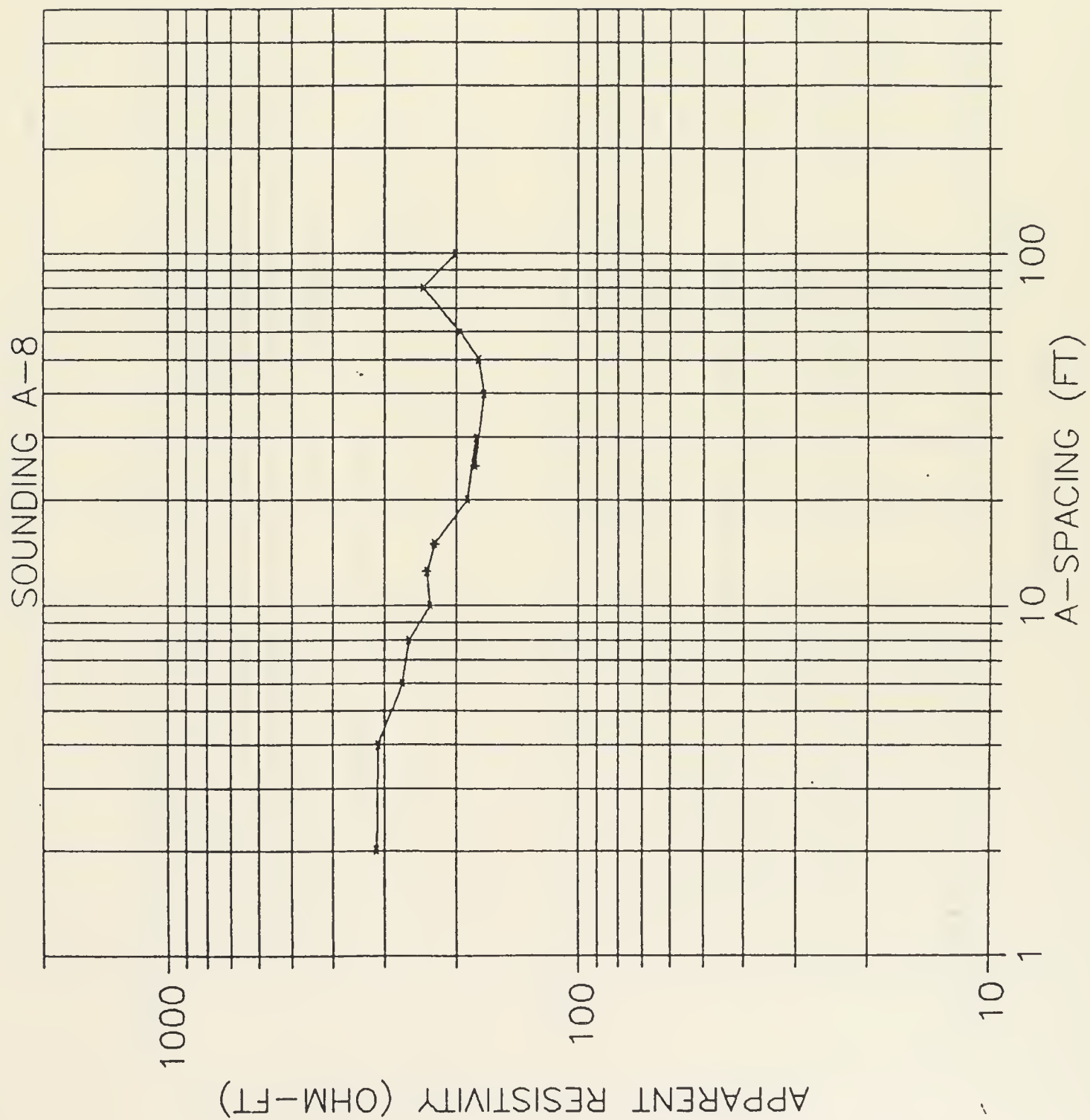


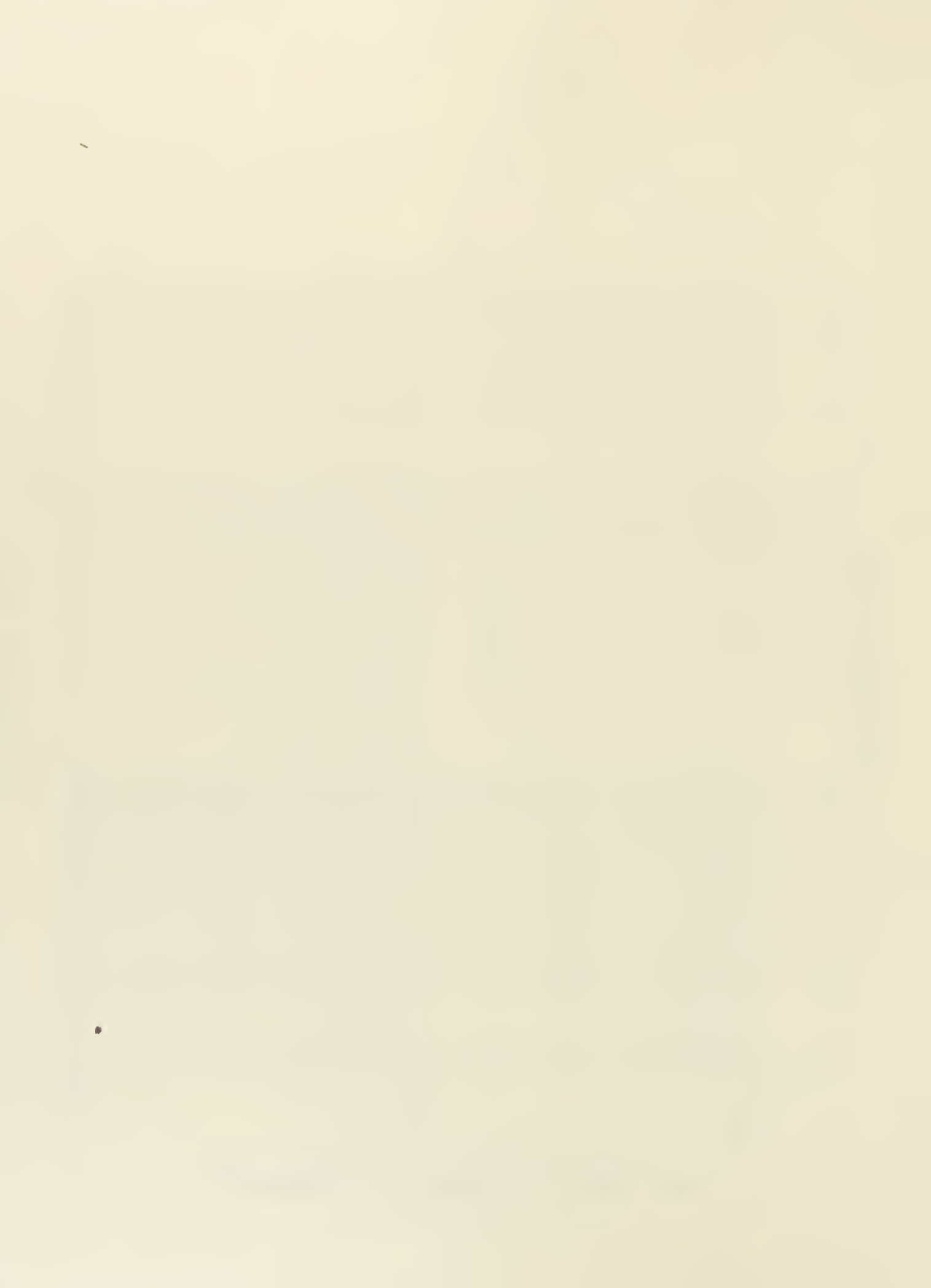
SOUNDING A-6

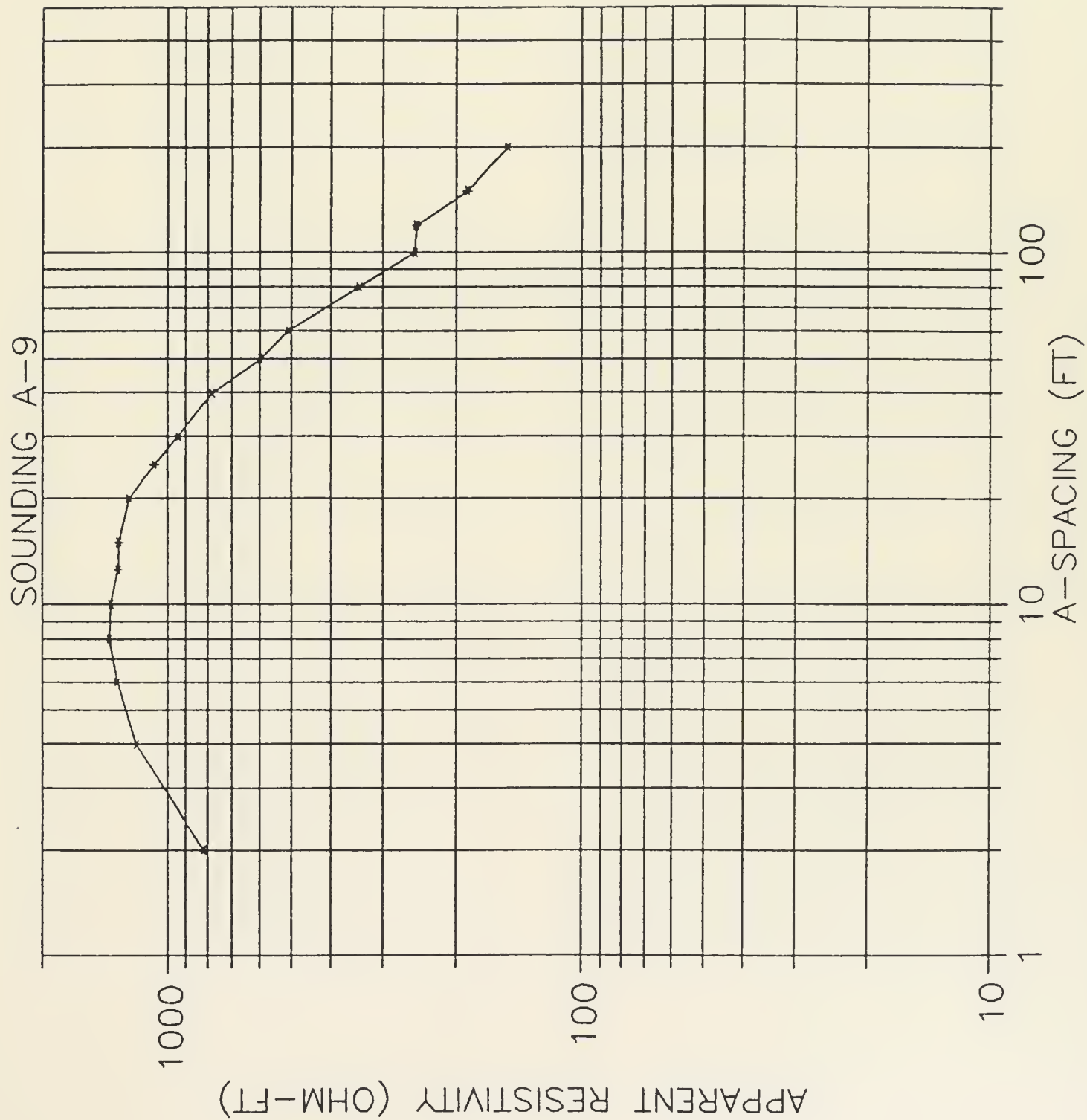


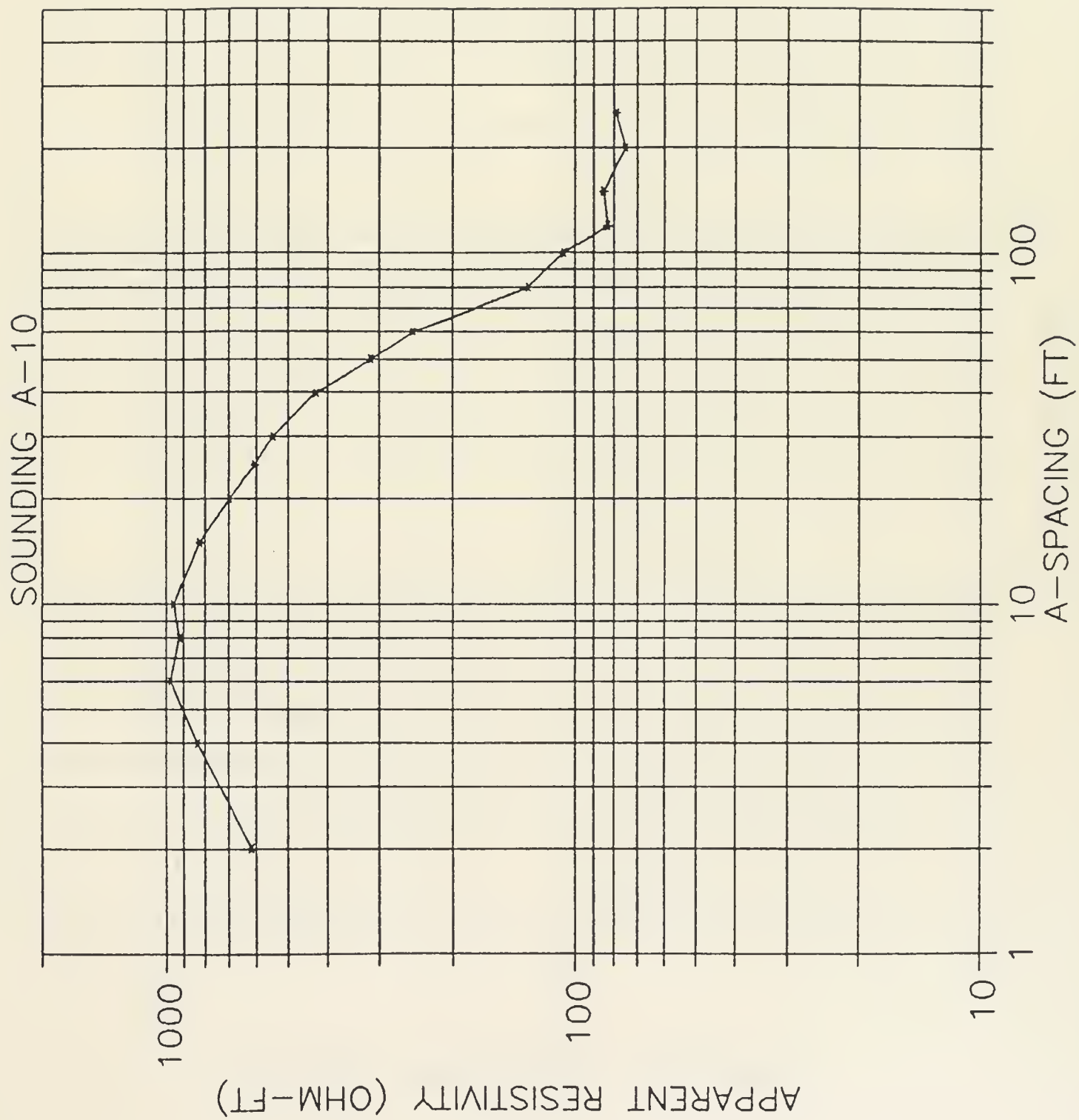
SOUNDING A-7



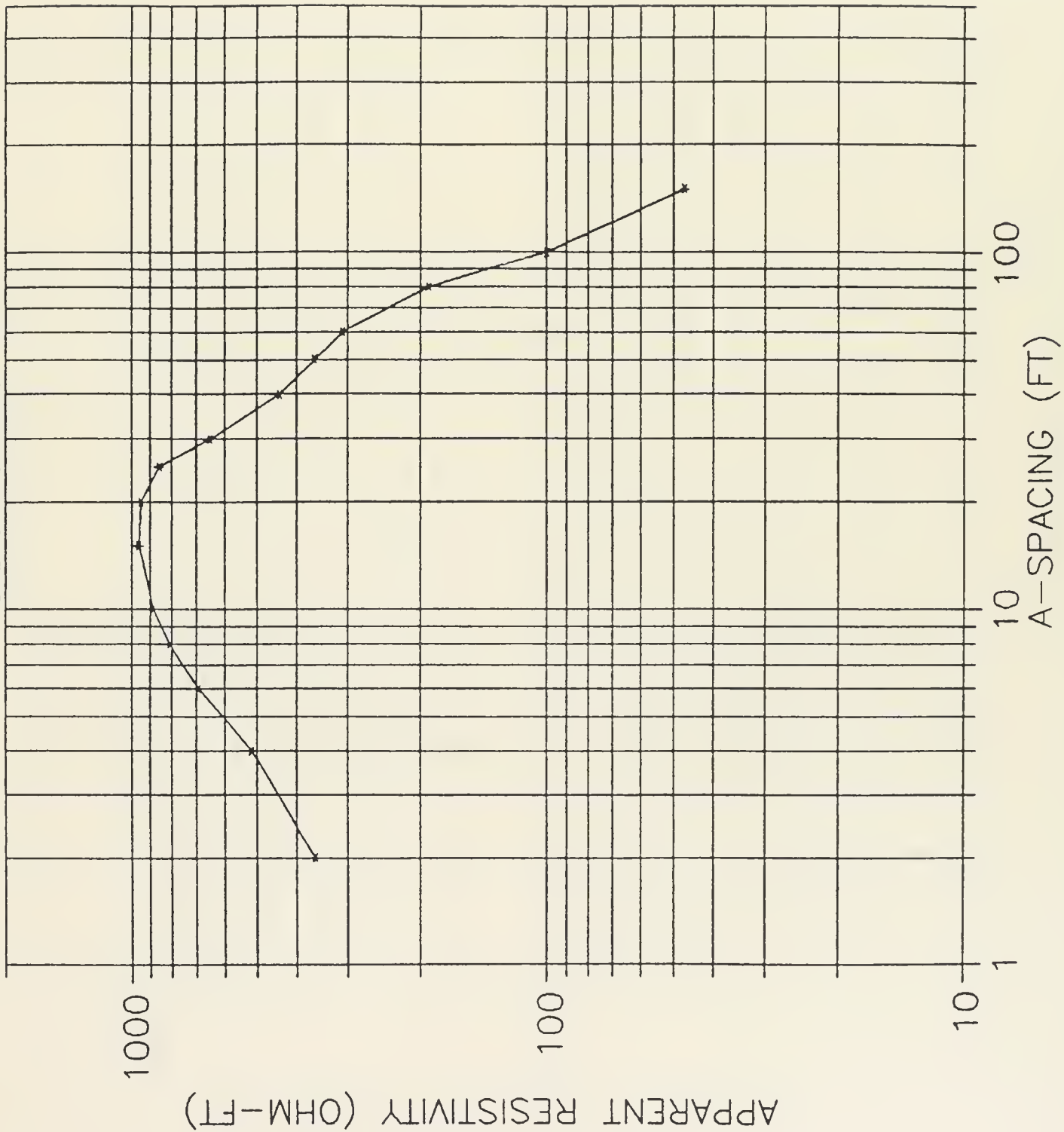




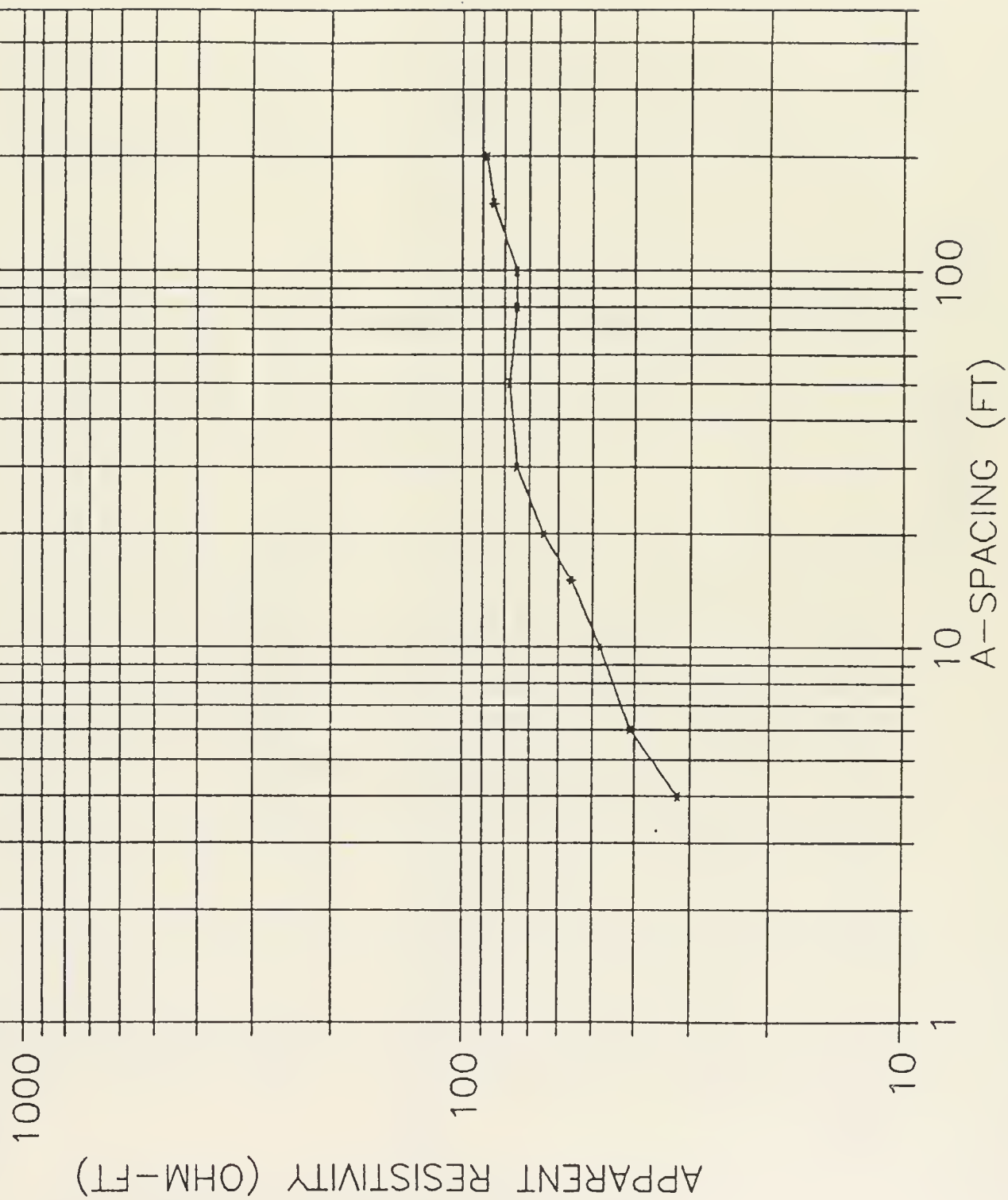




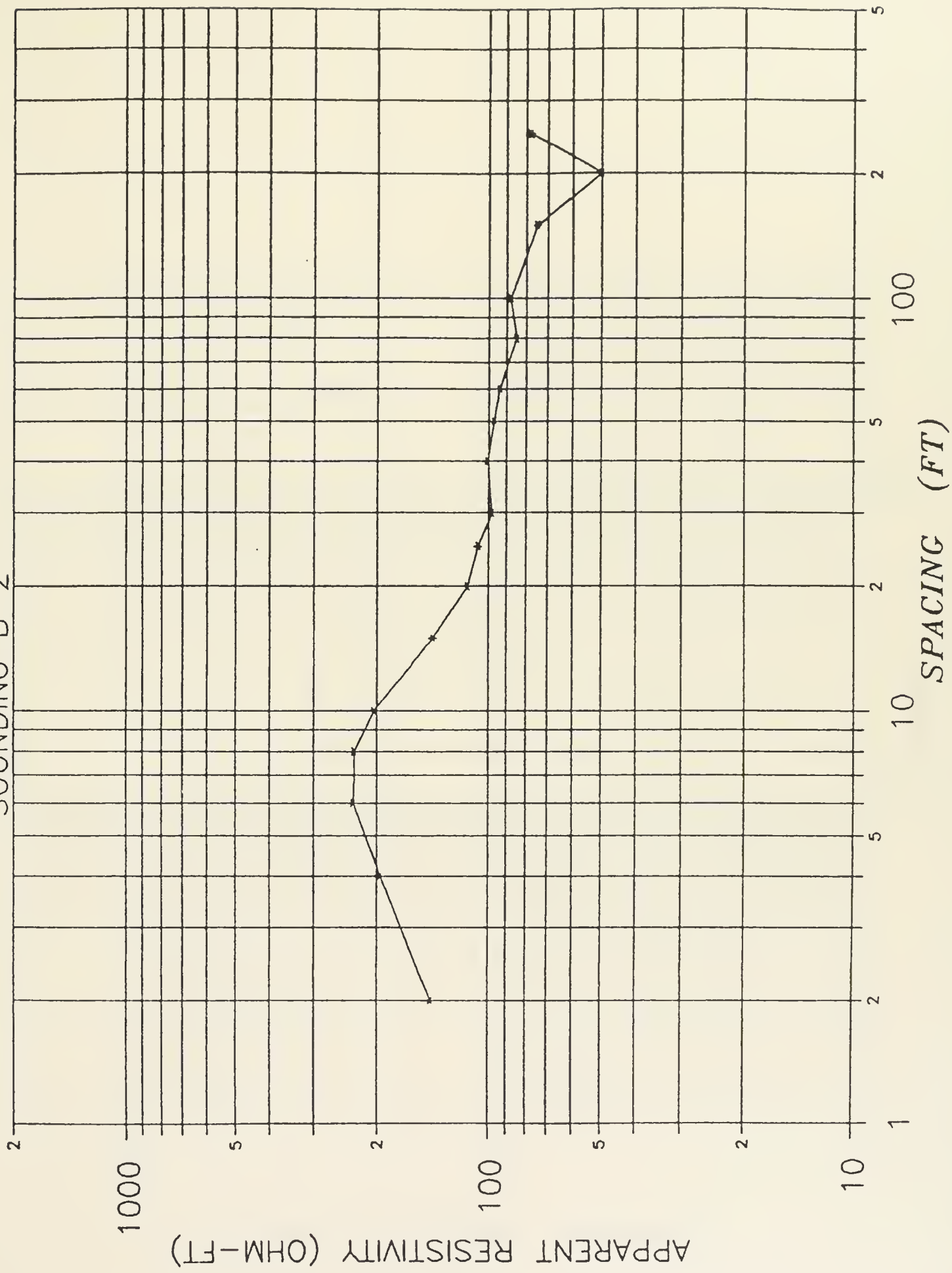
SOUNDING A-11



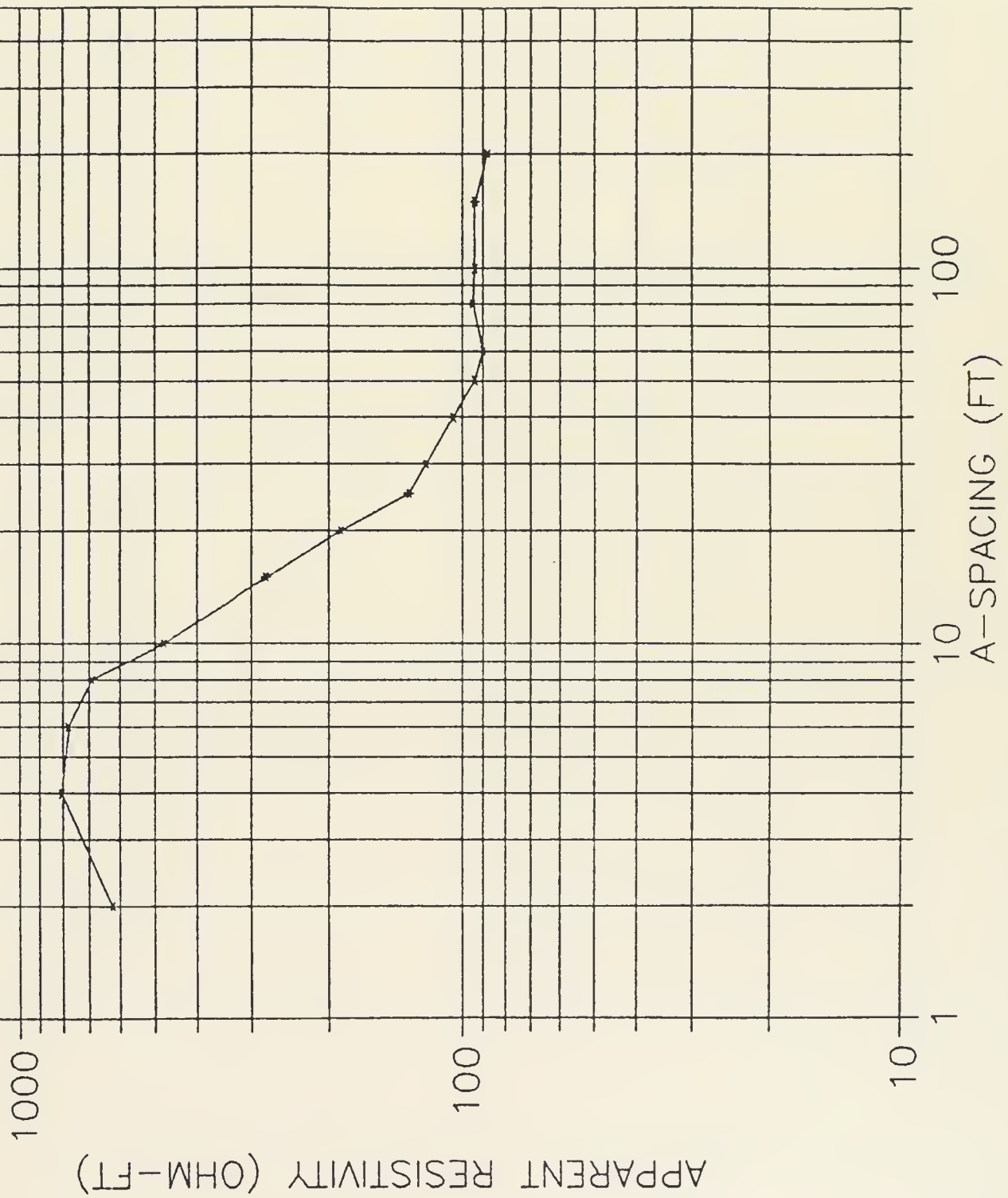
SOUNDING B-1



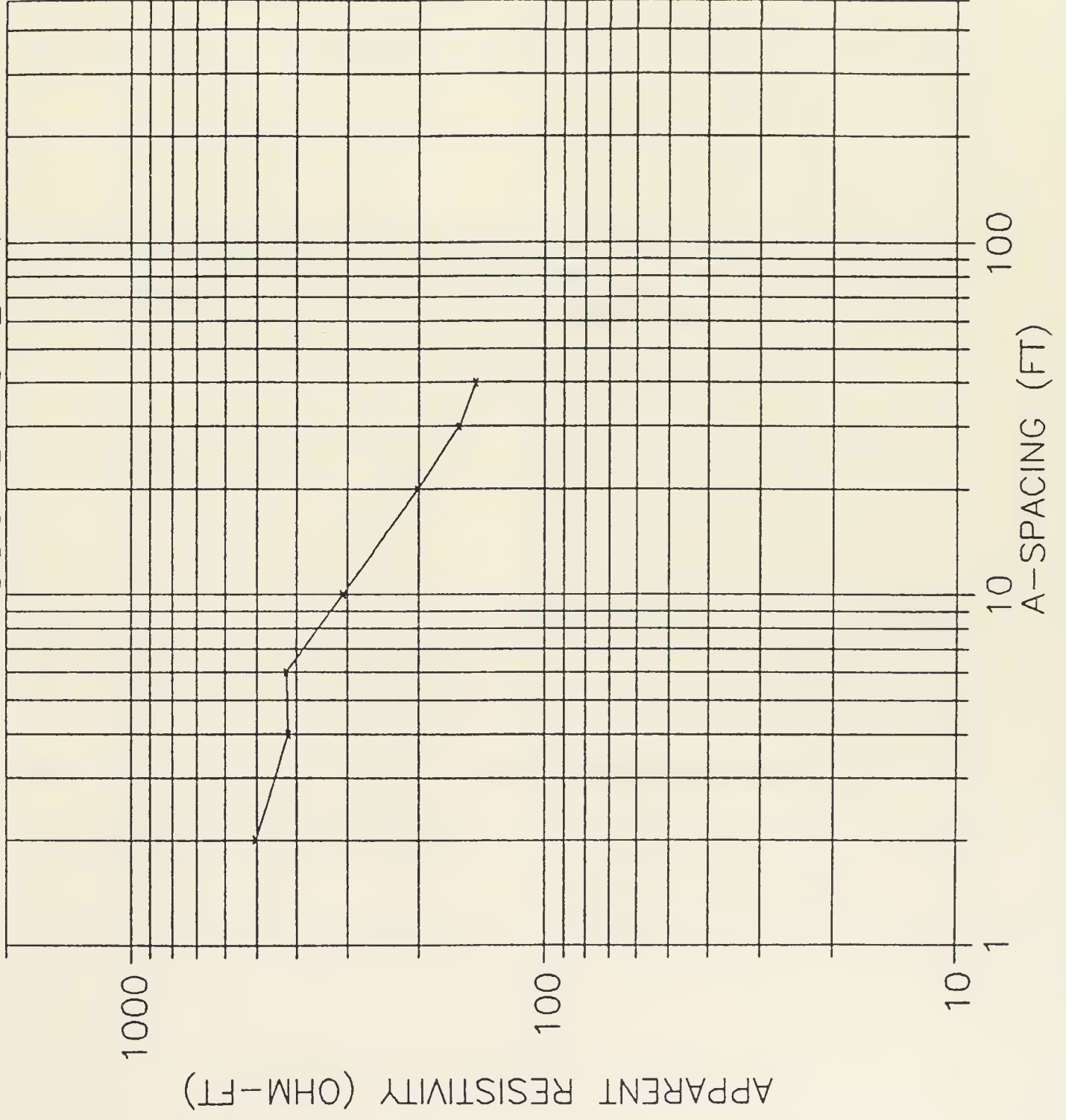
SOUNDING B-2



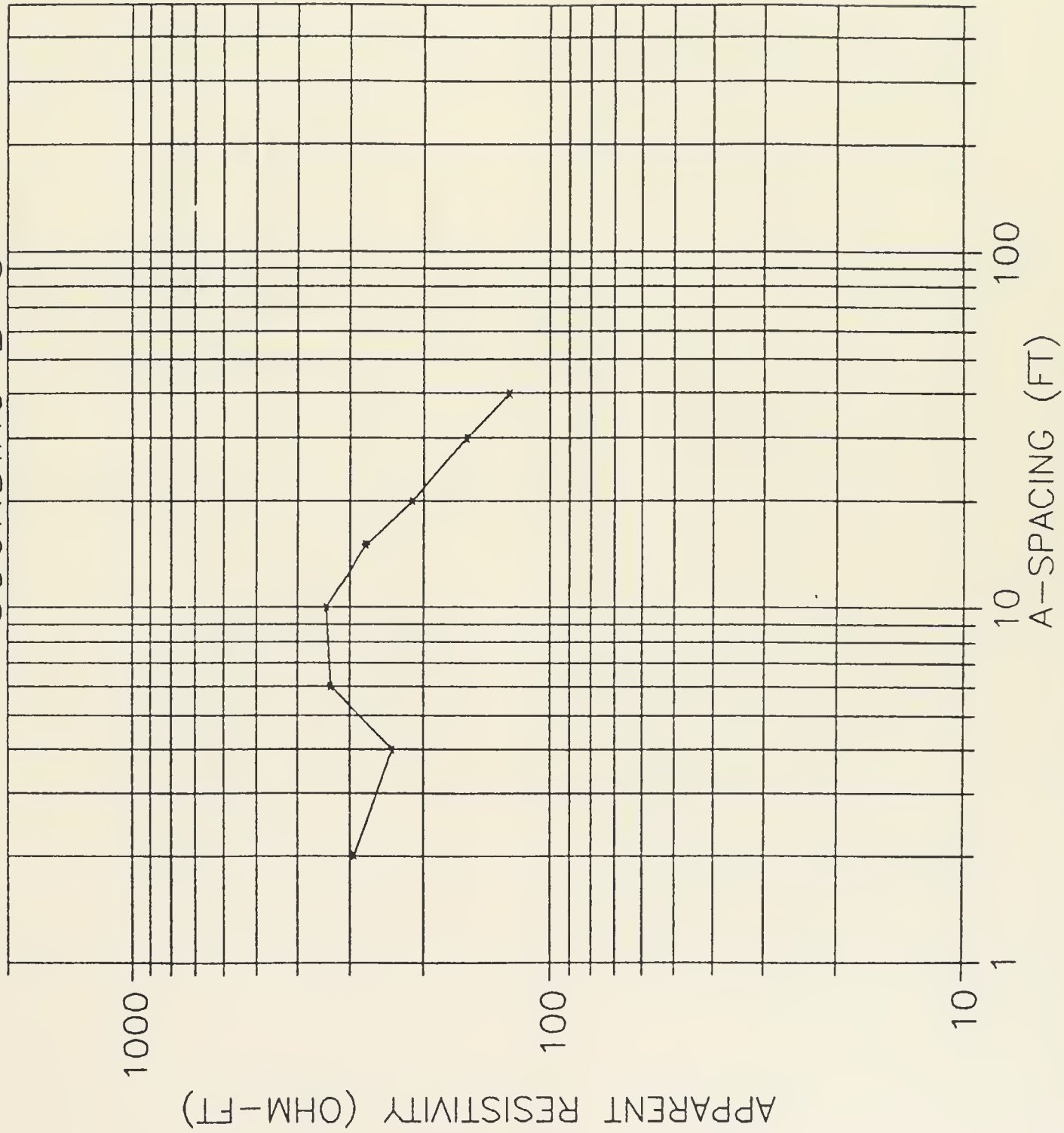
SOUNDING B-3



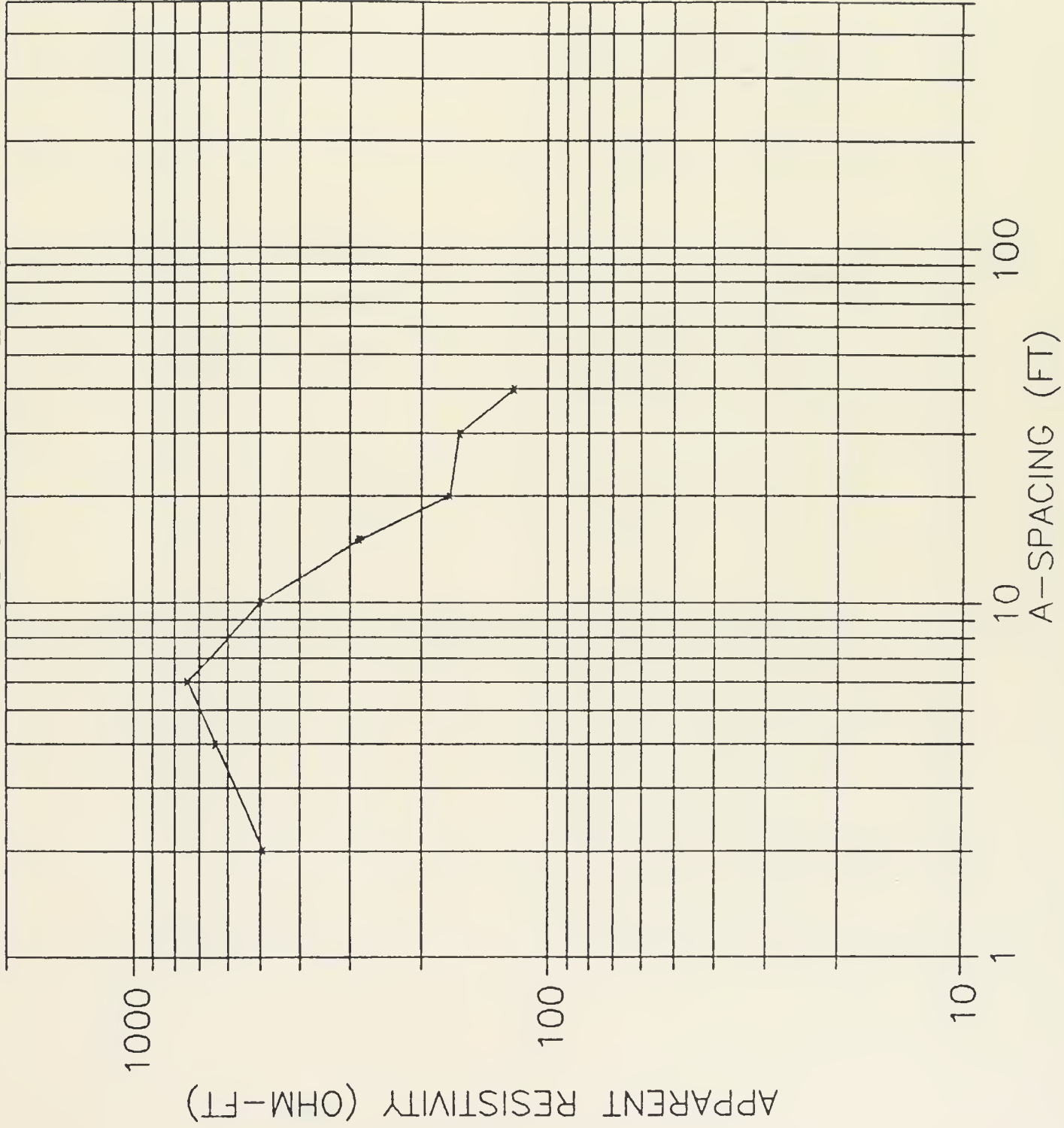
SOUNDING B-4



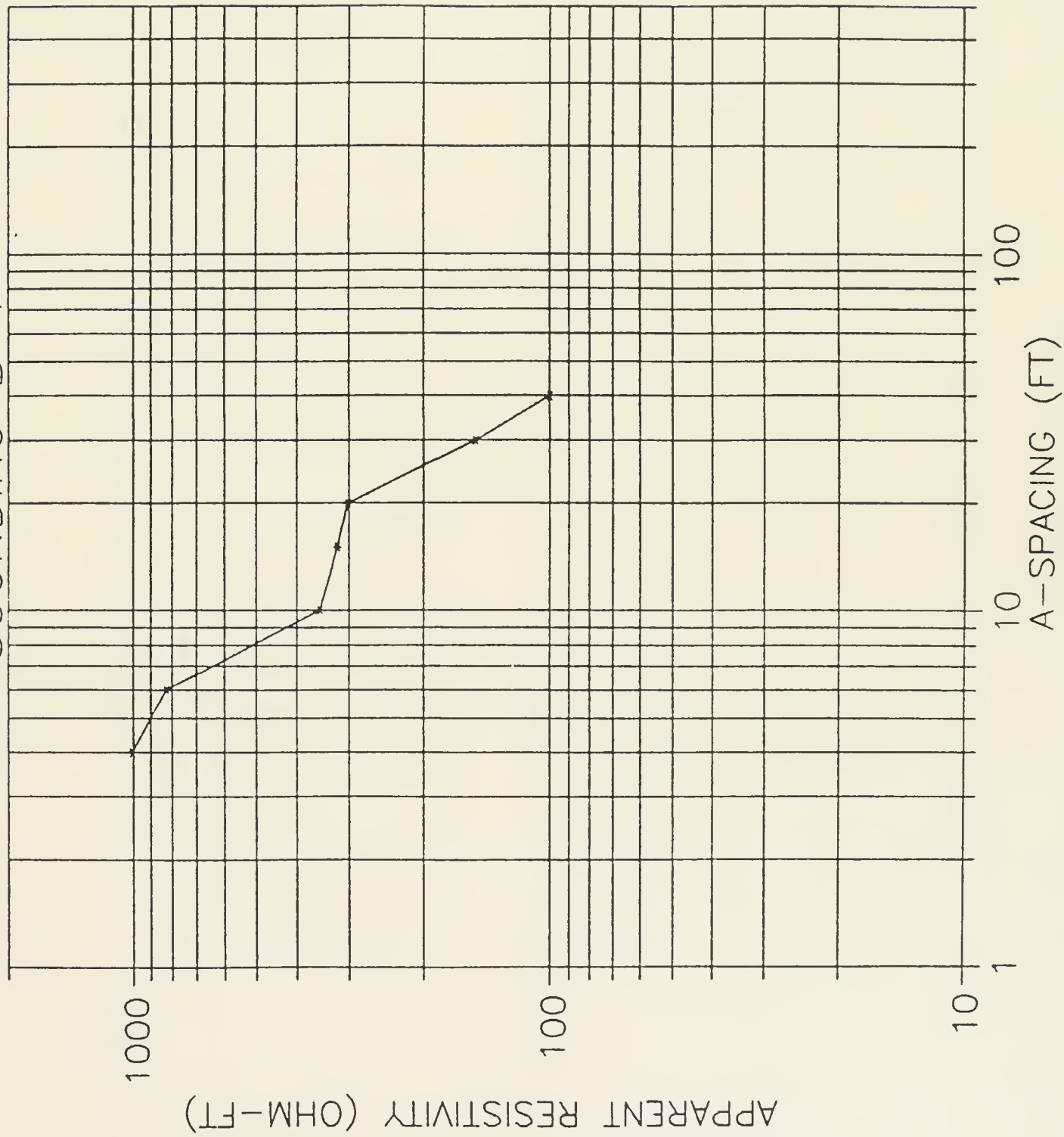
SOUNDING B-5



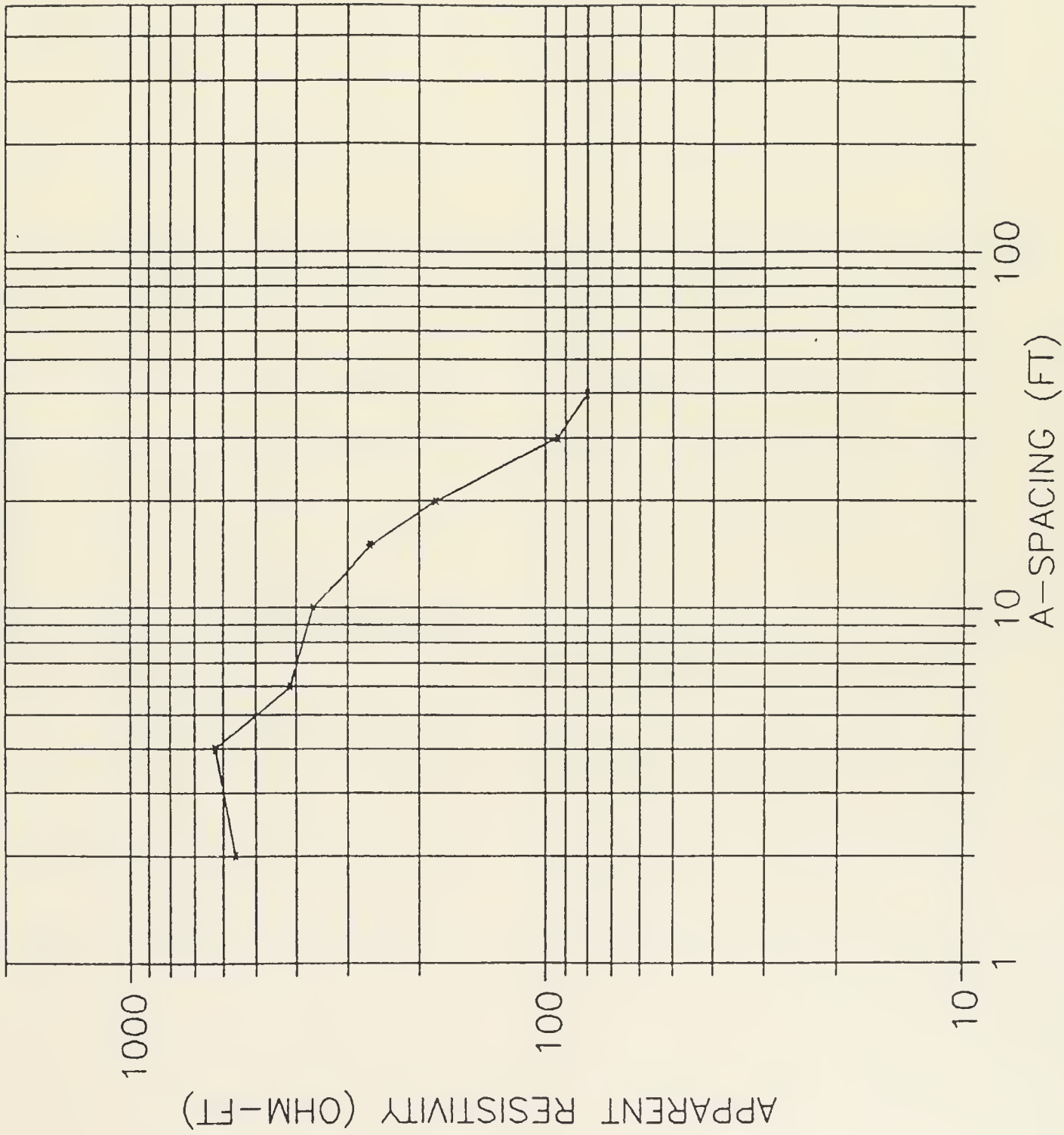
SOUNDING B-6



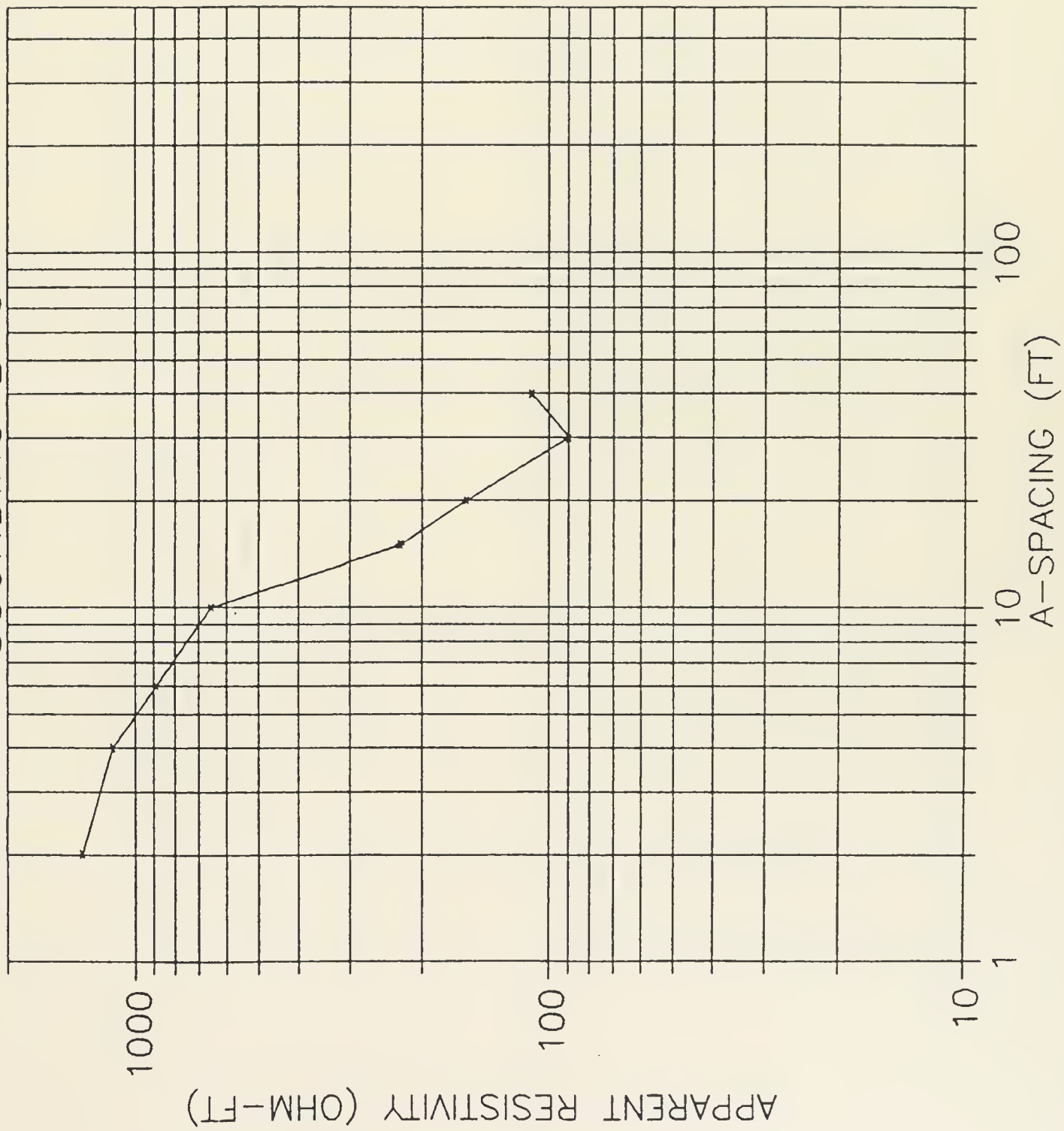
SOUNDING B-7



SOUNDING B-8



SOUNDING B-9



SOUNDING B-10

1000

APPARENT RESISTIVITY (OHM-FT)

100

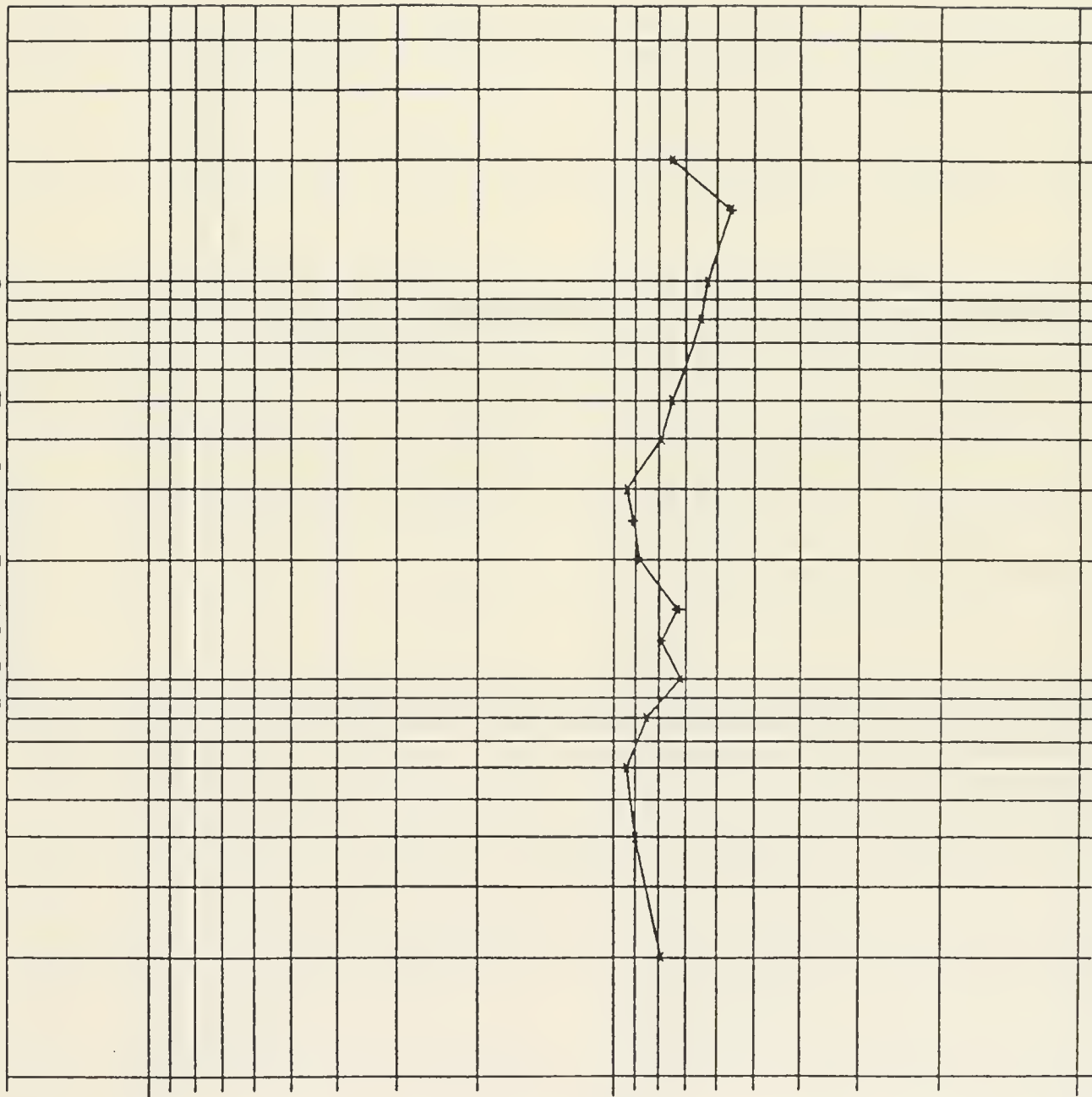
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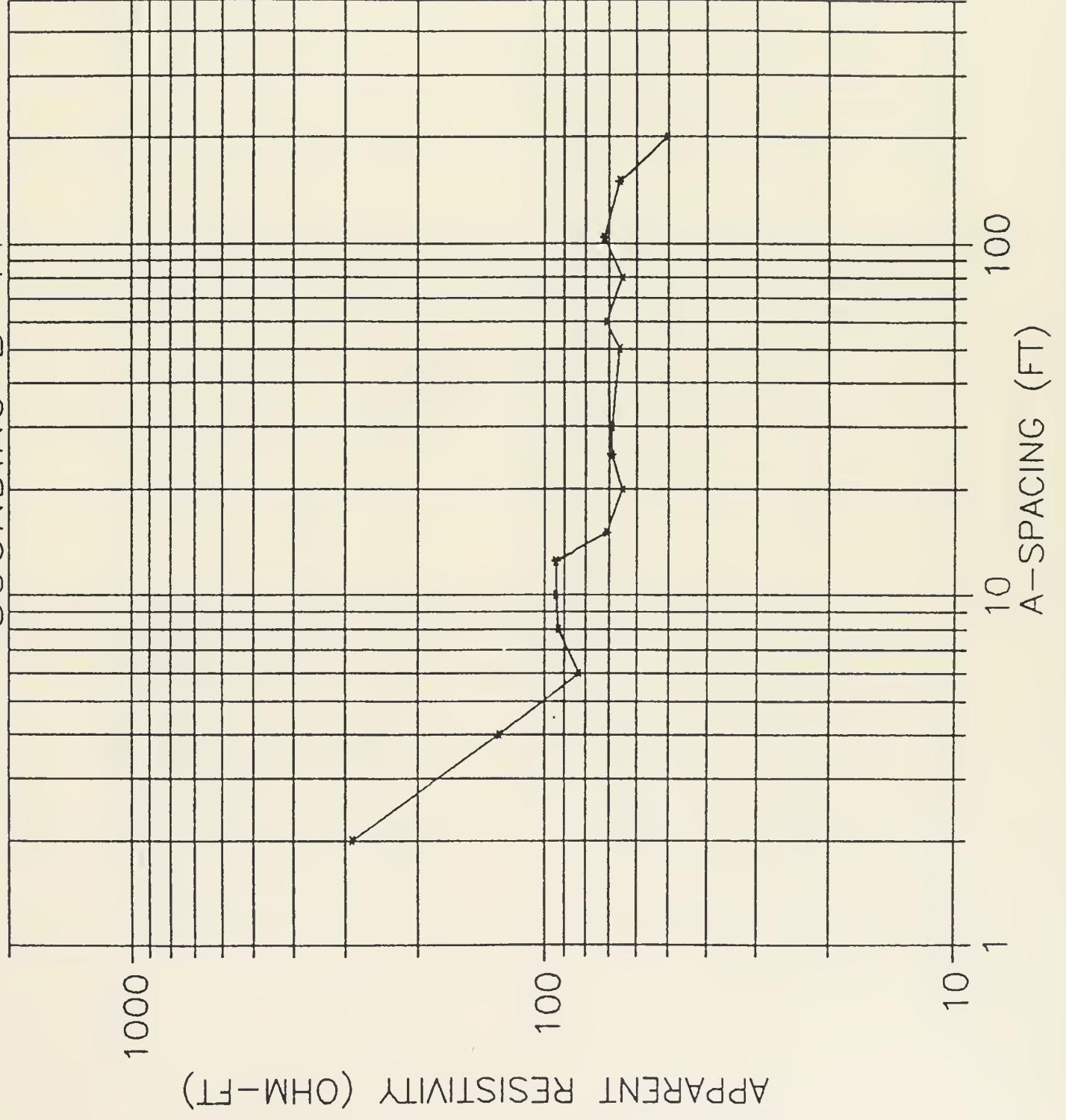
A-SPACING (FT)

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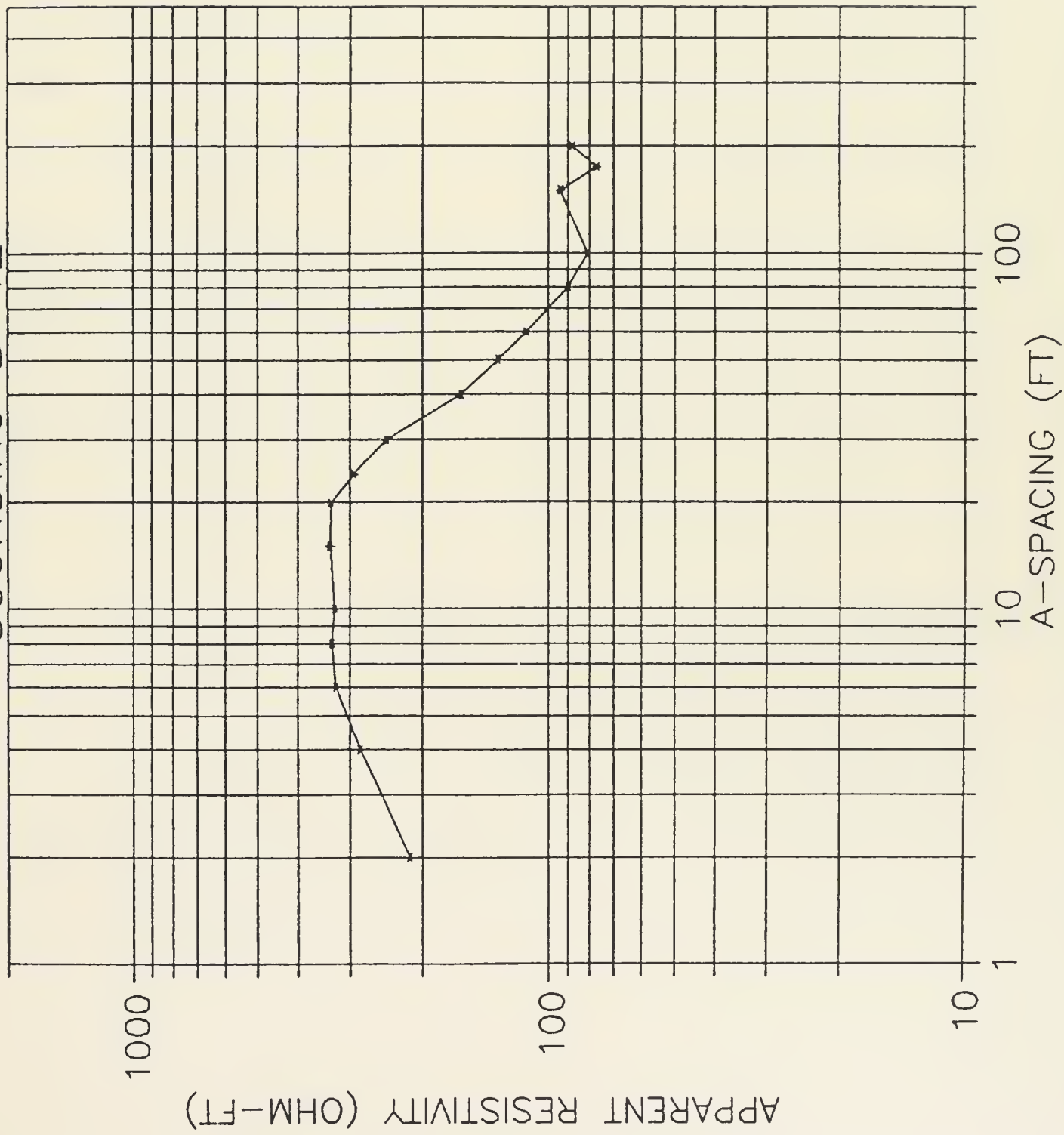
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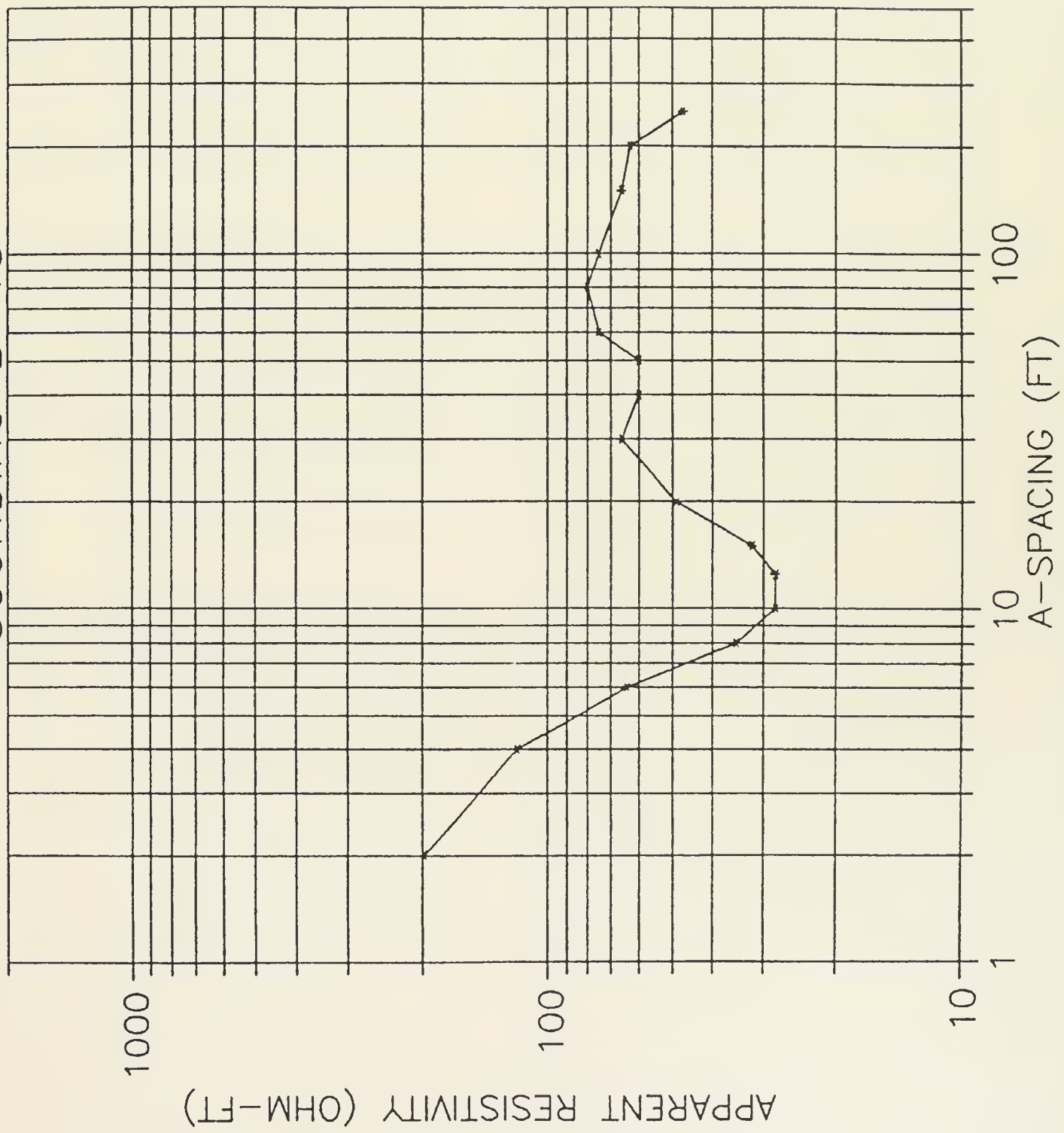
SOUNDING B-11



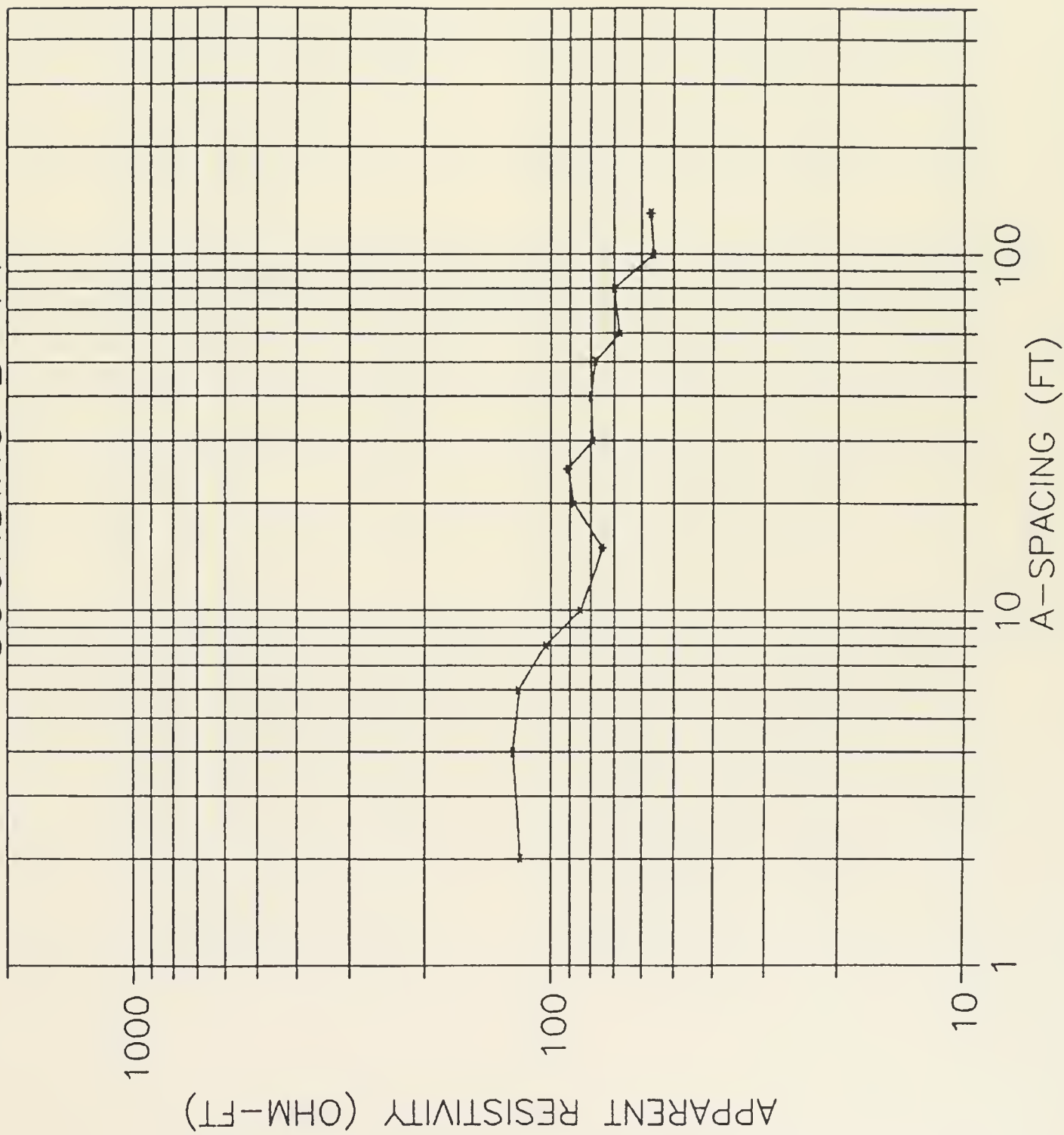
SOUNDING B-12



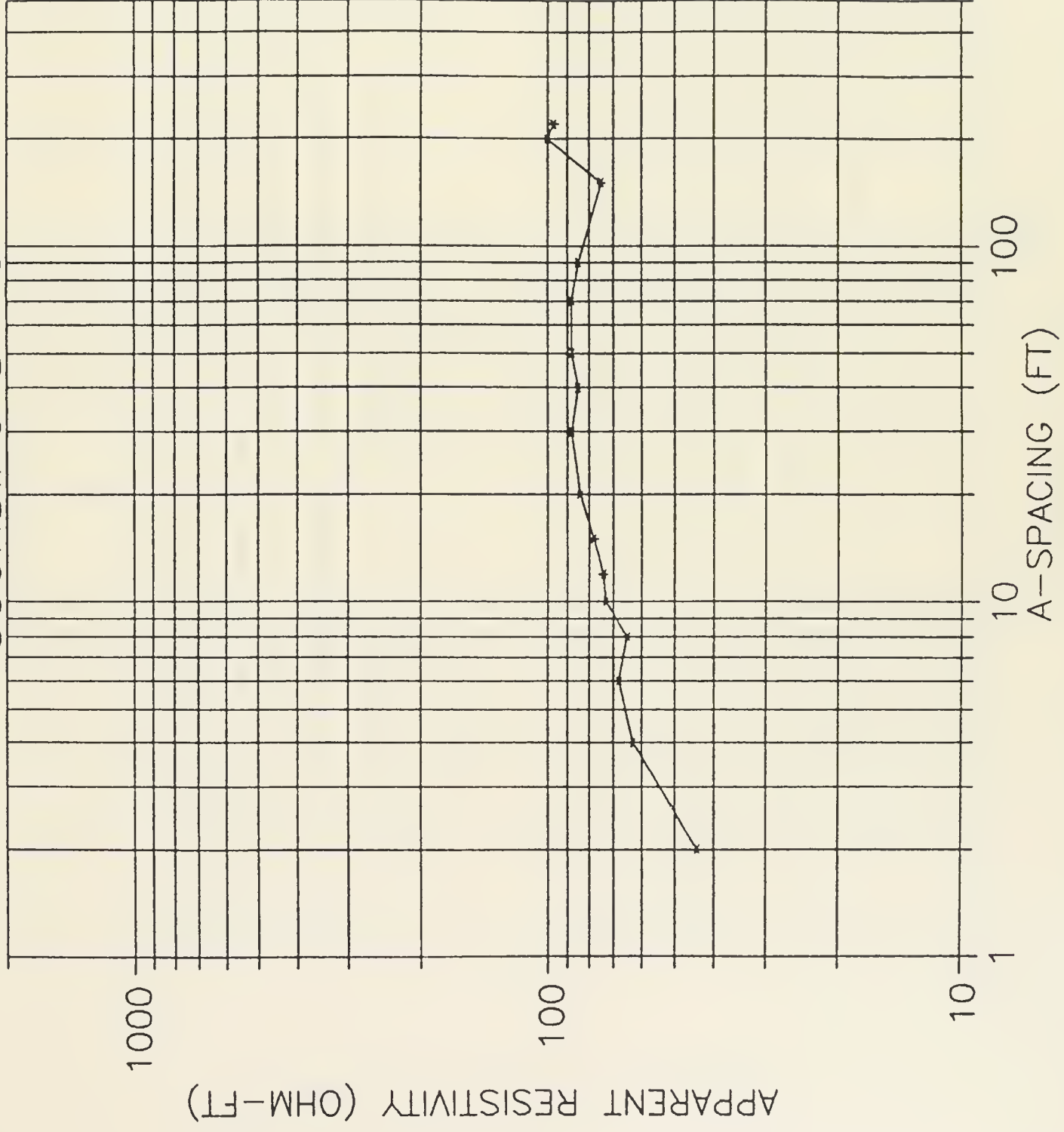
SOUNDING B-13



SOUNDING B-14



SOUNDING B-15



SOUNDING B-16

APPARENT RESISTIVITY (OHM-FT)

A-SPACING (FT)

100

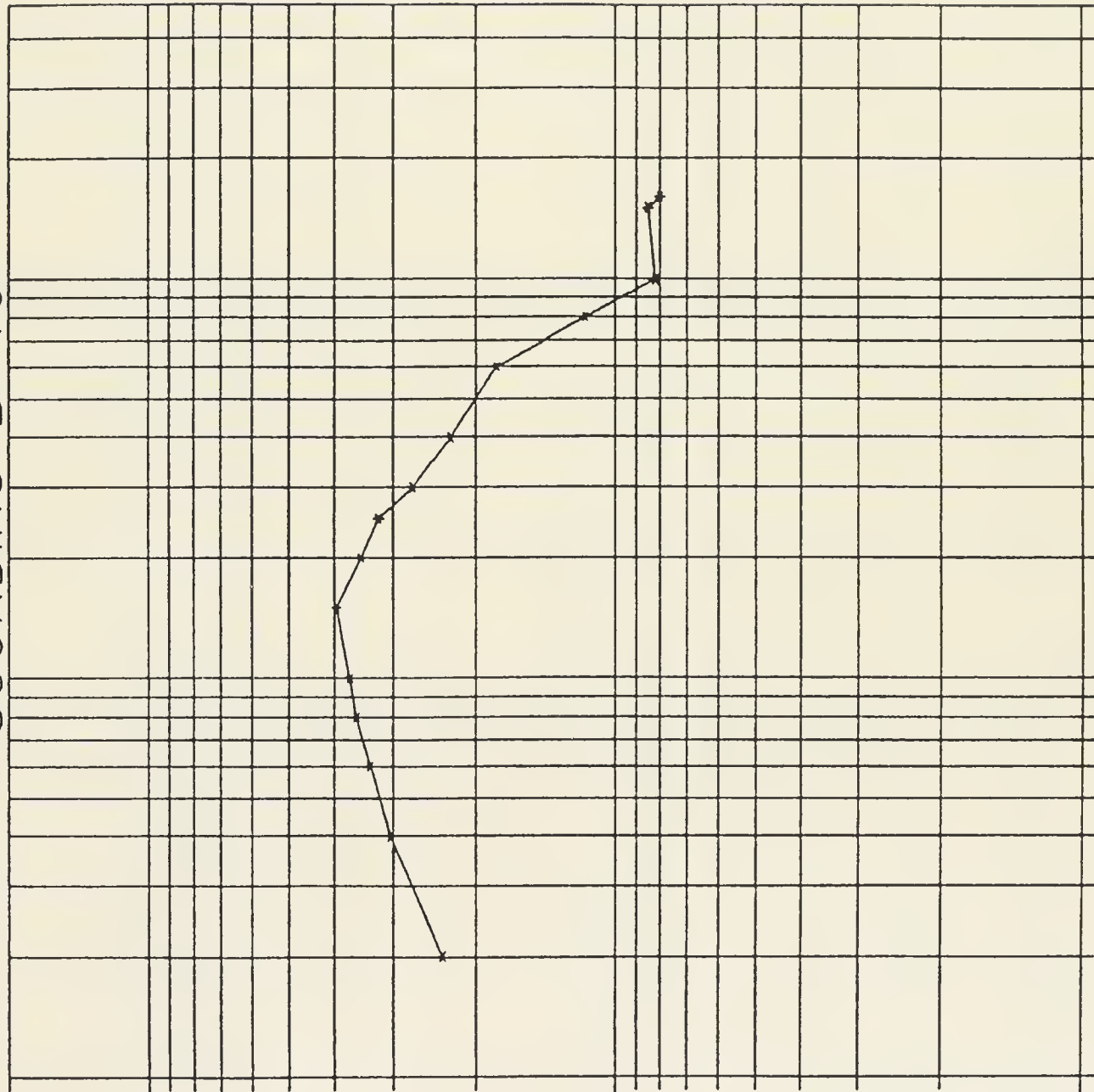
10

1

1000

100

10



SOUNDING B-17

1000

APPARENT RESISTIVITY (OHM-FT)

100

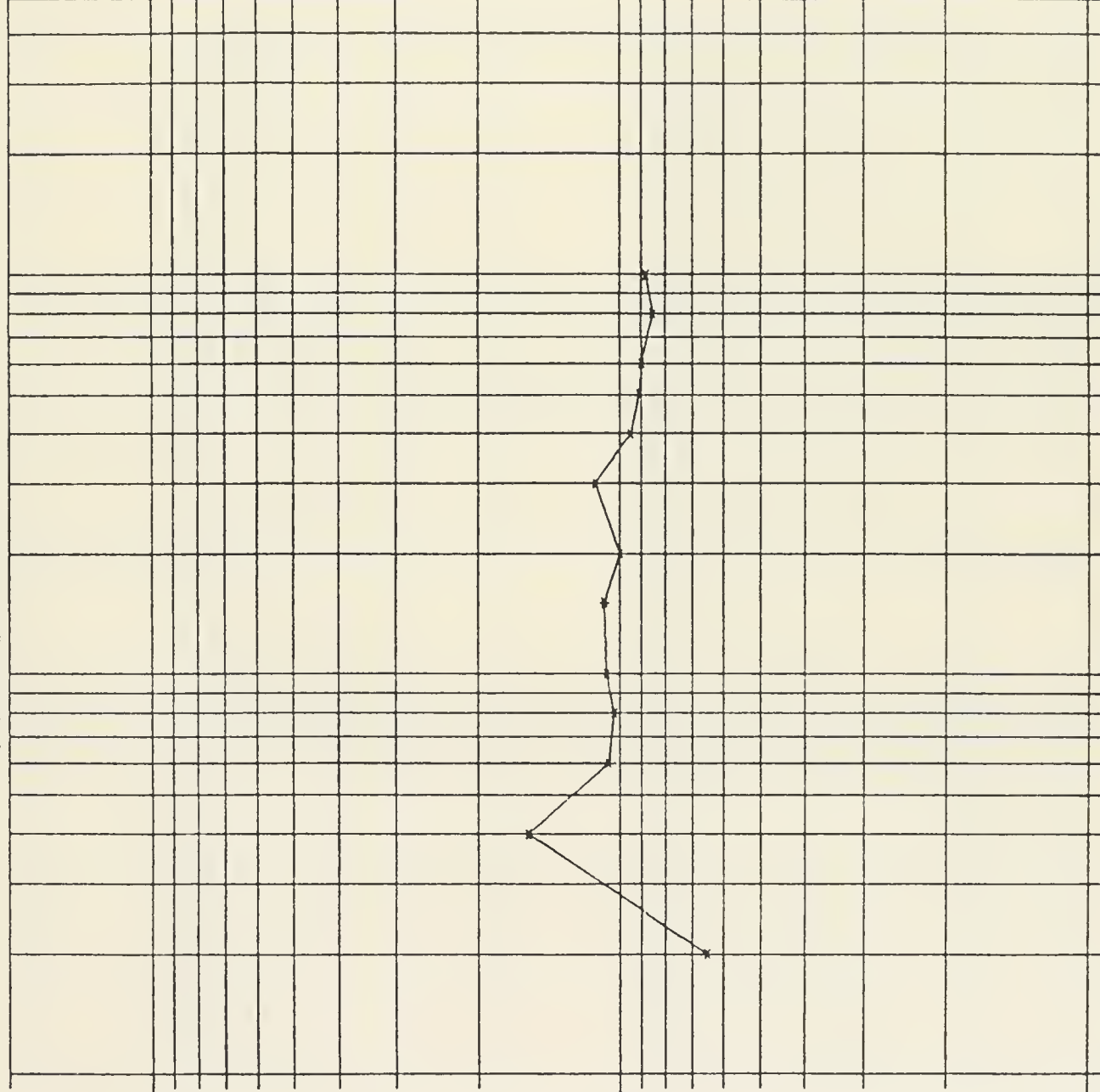
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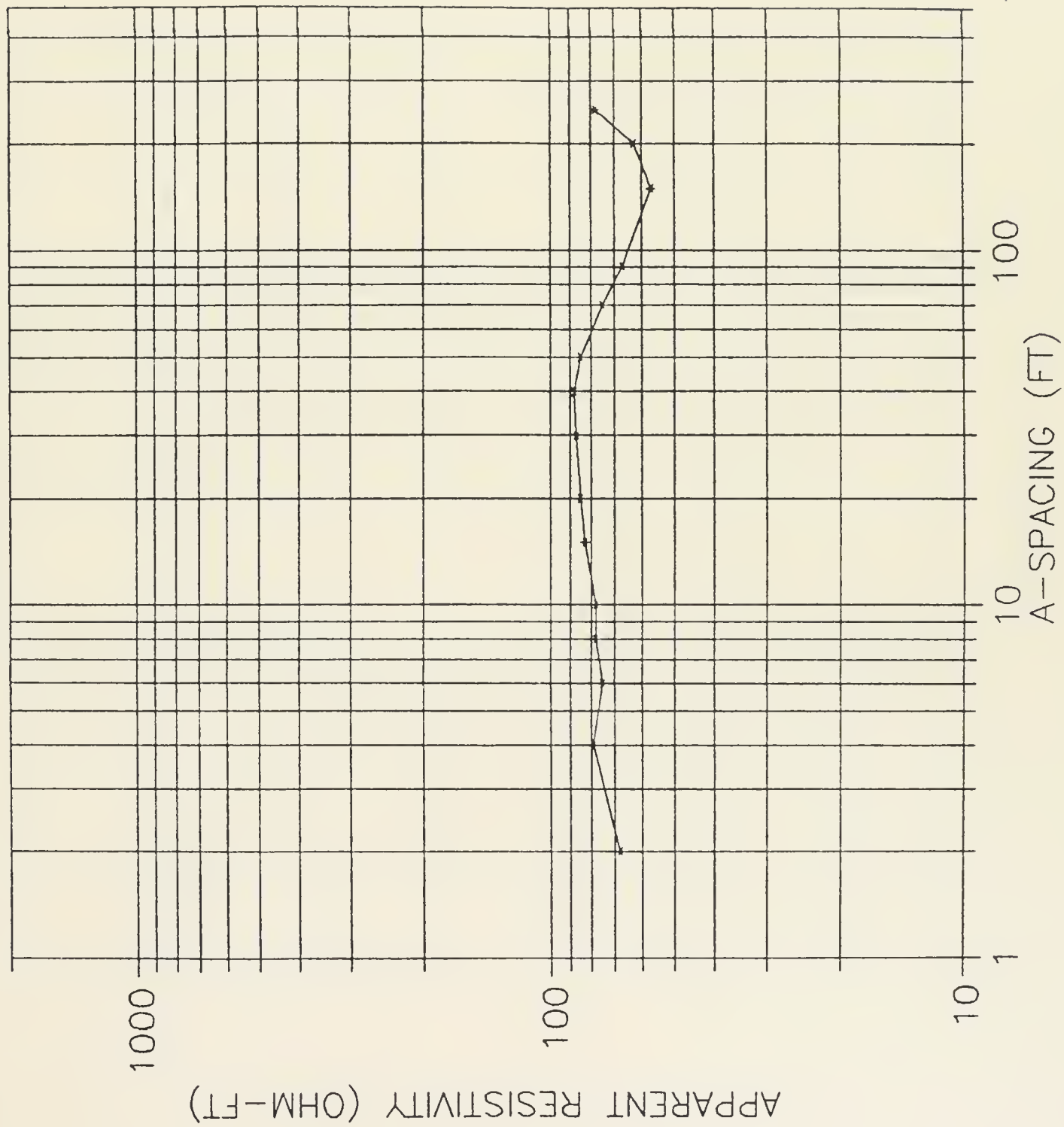
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A-SPACING (FT)

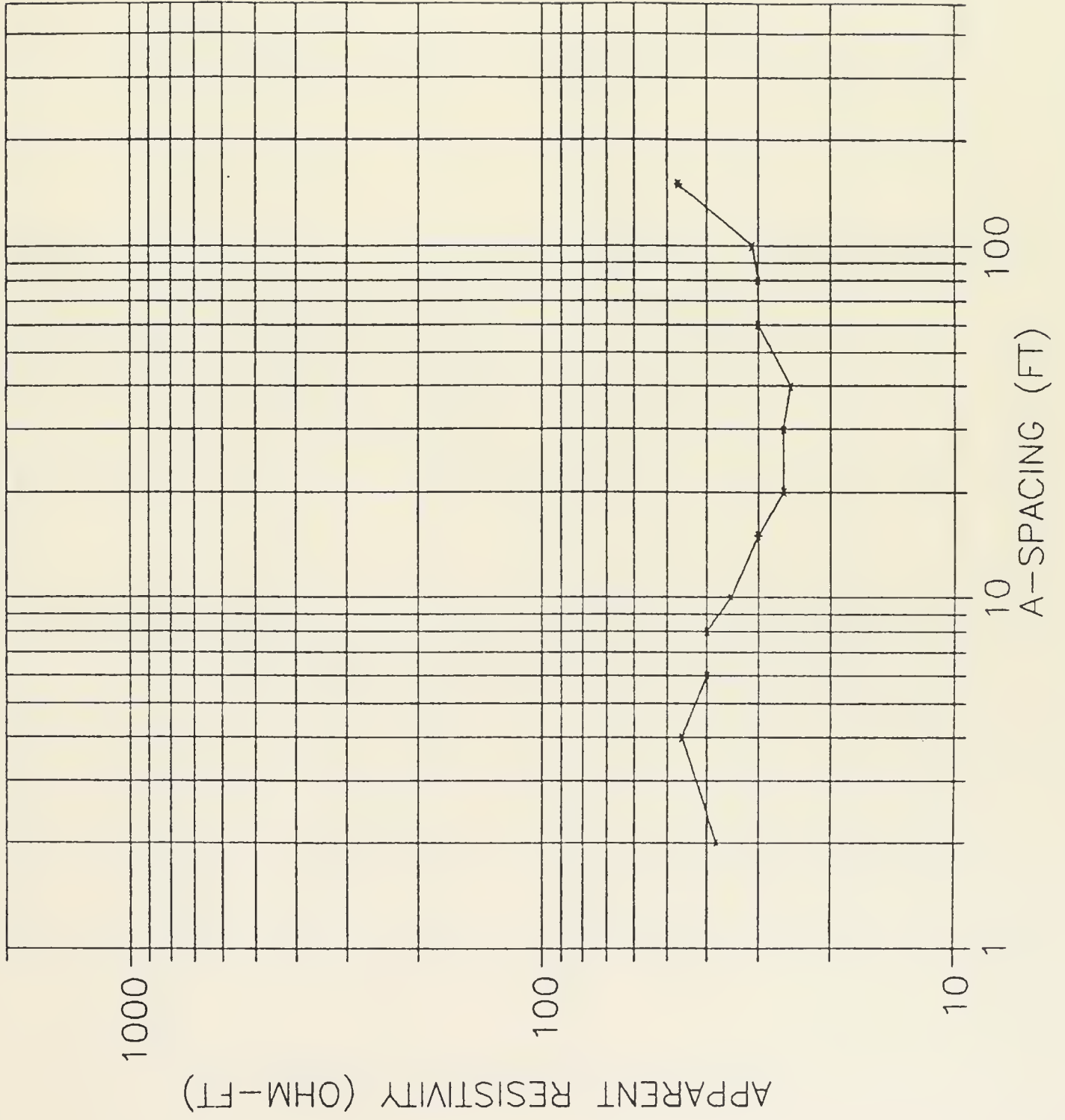
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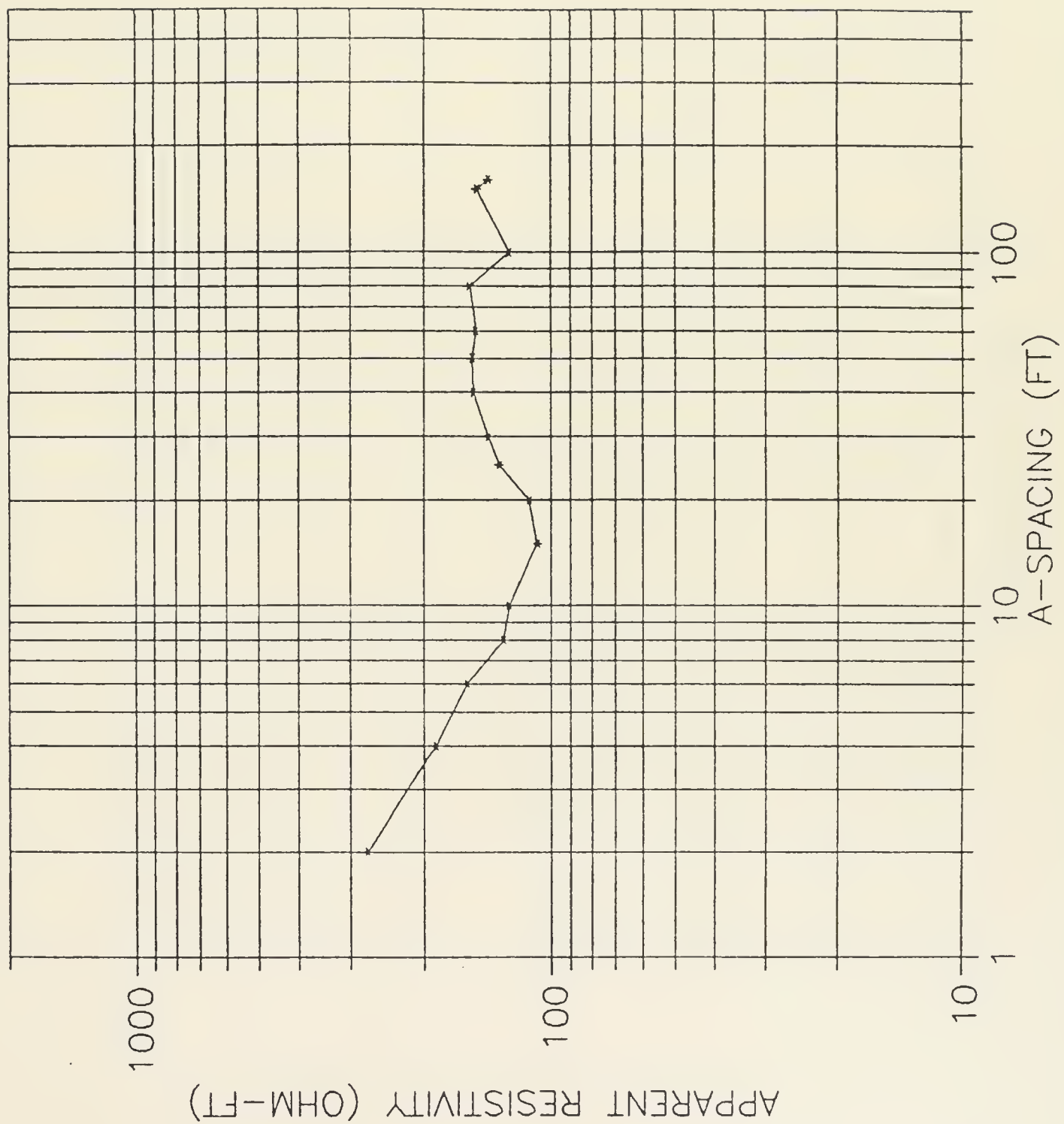
SOUNDING B-18



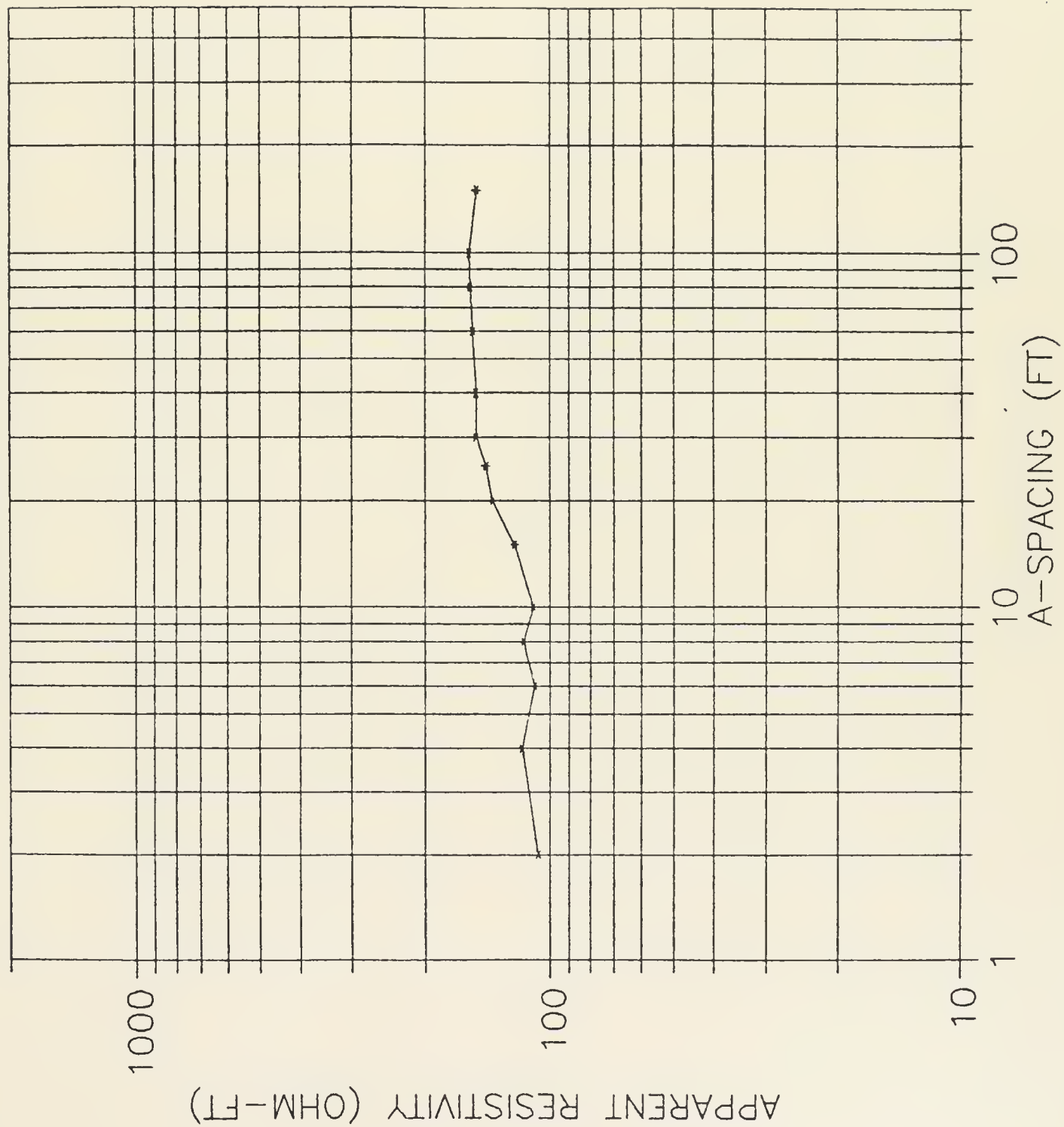
SOUNDING B-19



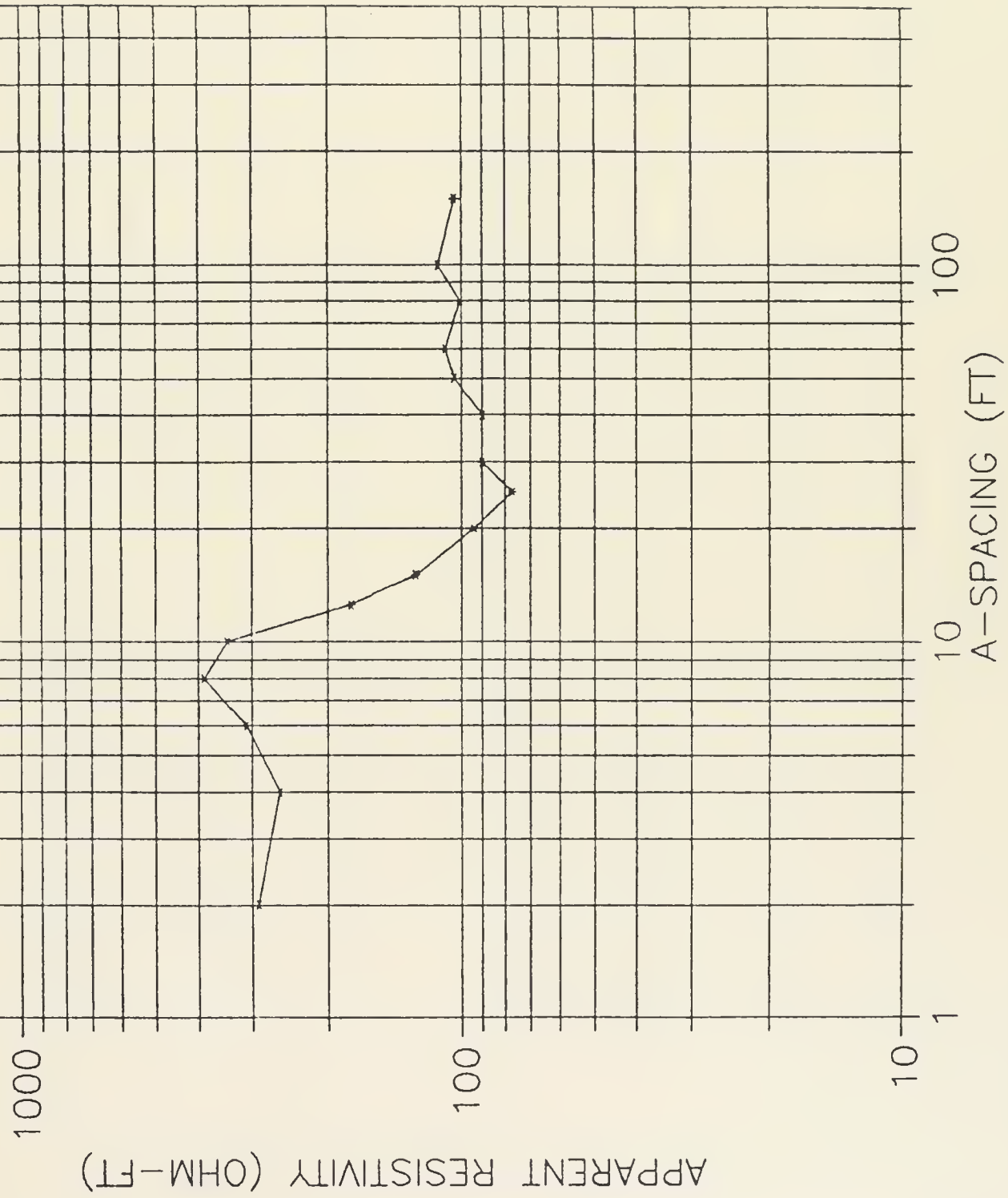
SOUNDING B-20



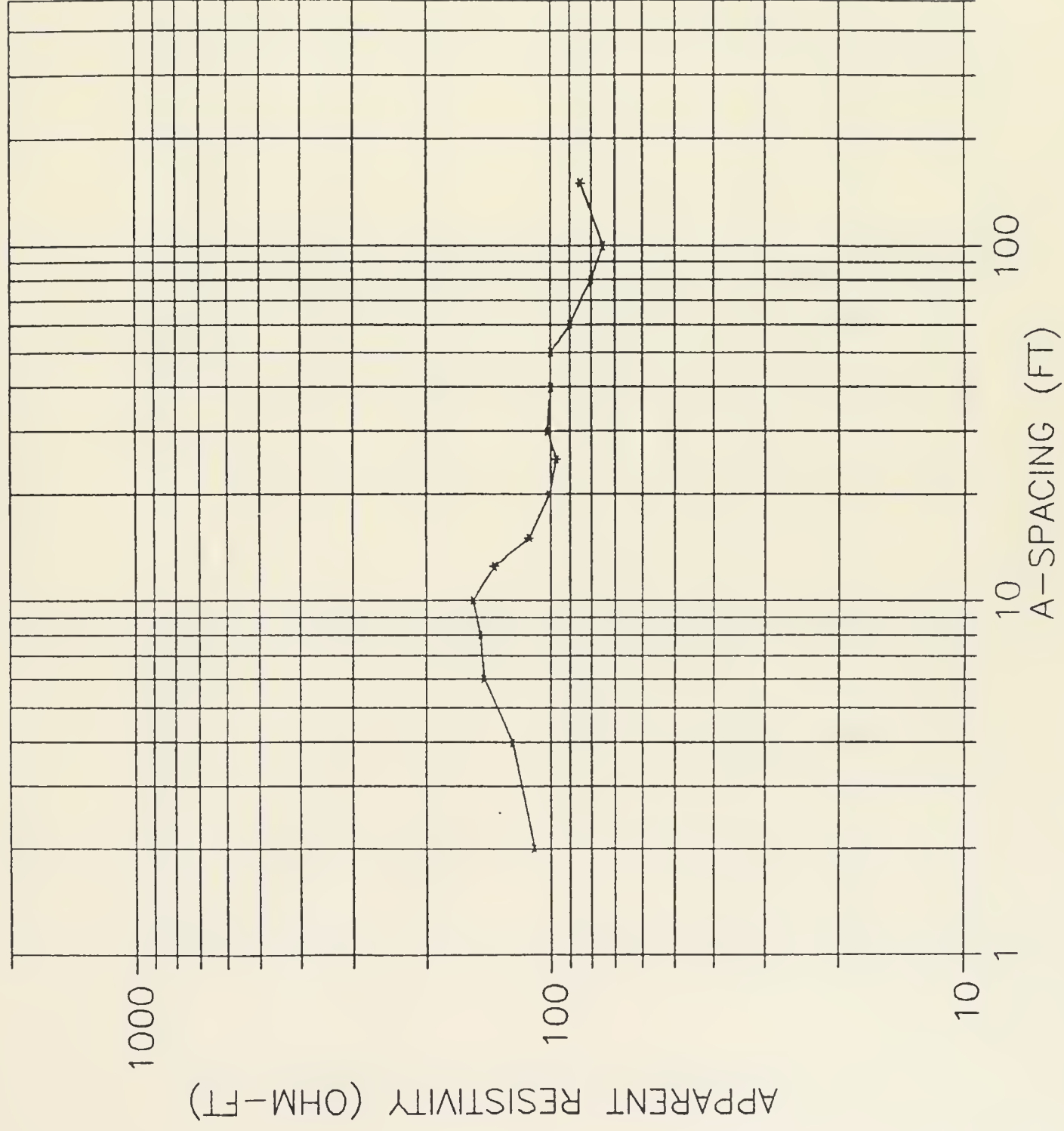
SOUNDING B-21



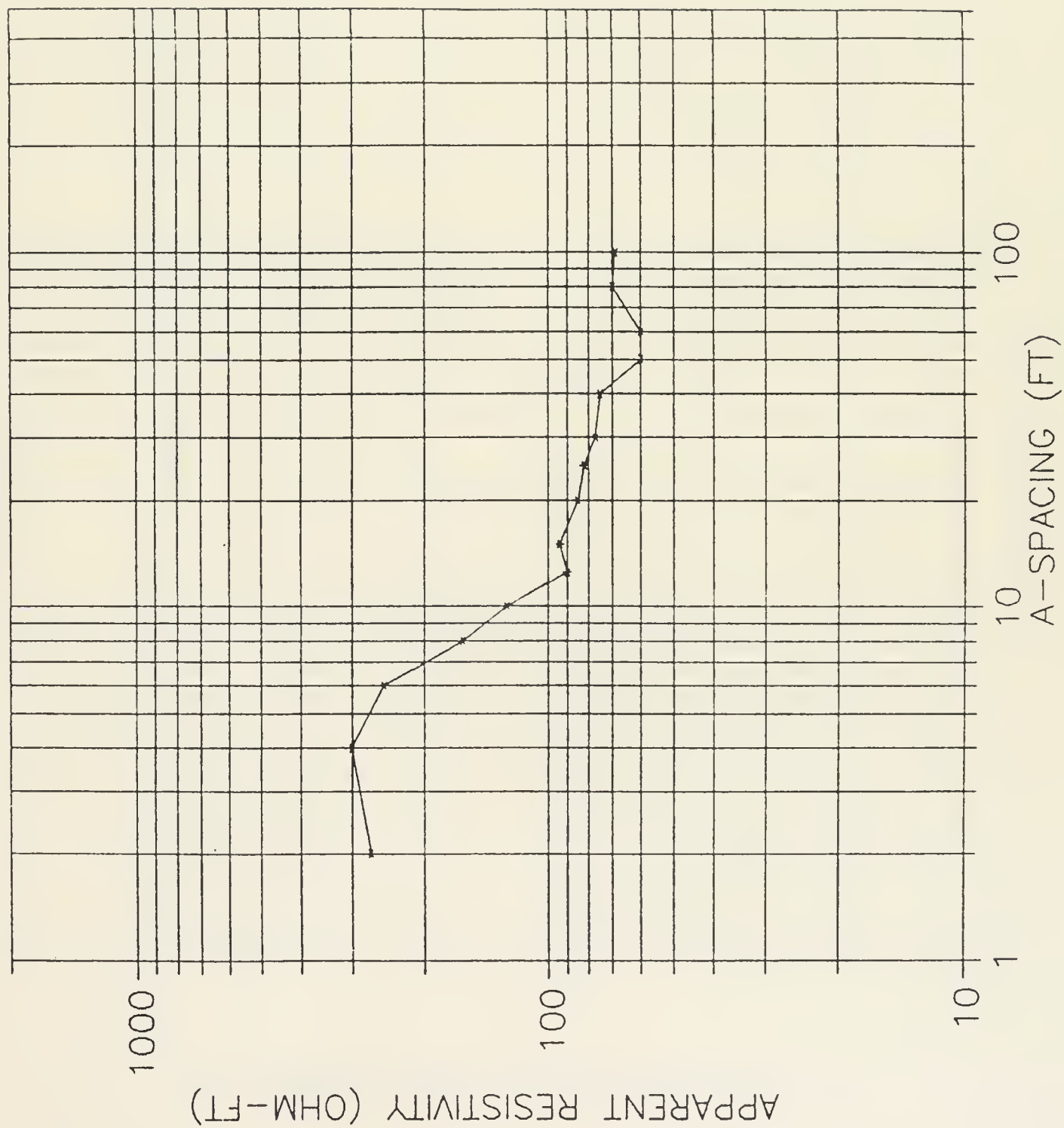
SOUNDING B-22



SOUNDING B-23



SOUNDING B-24



SOUNDING C-1

1000

APPARENT RESISTIVITY (OHM-FT)

100

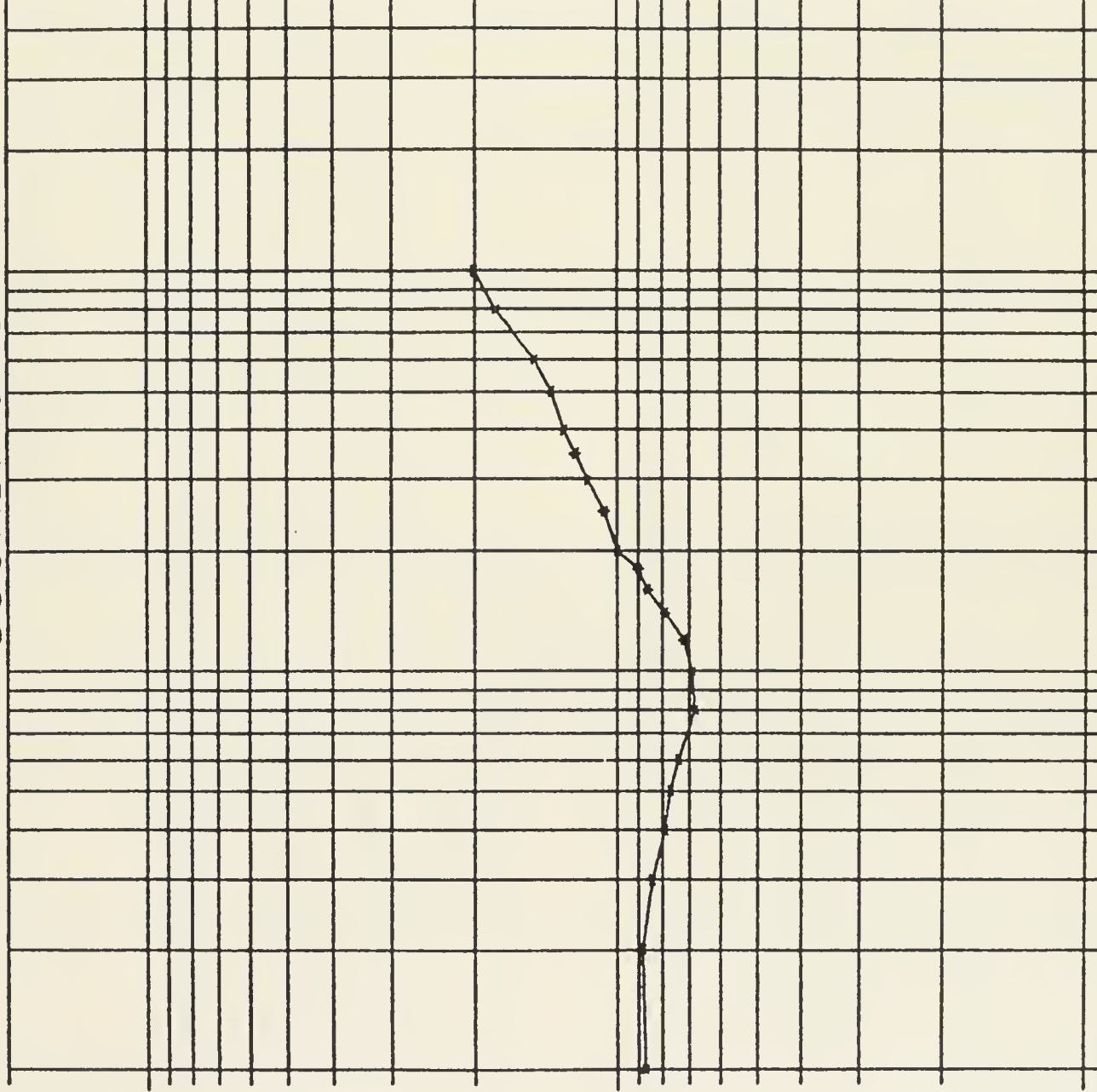
10

1

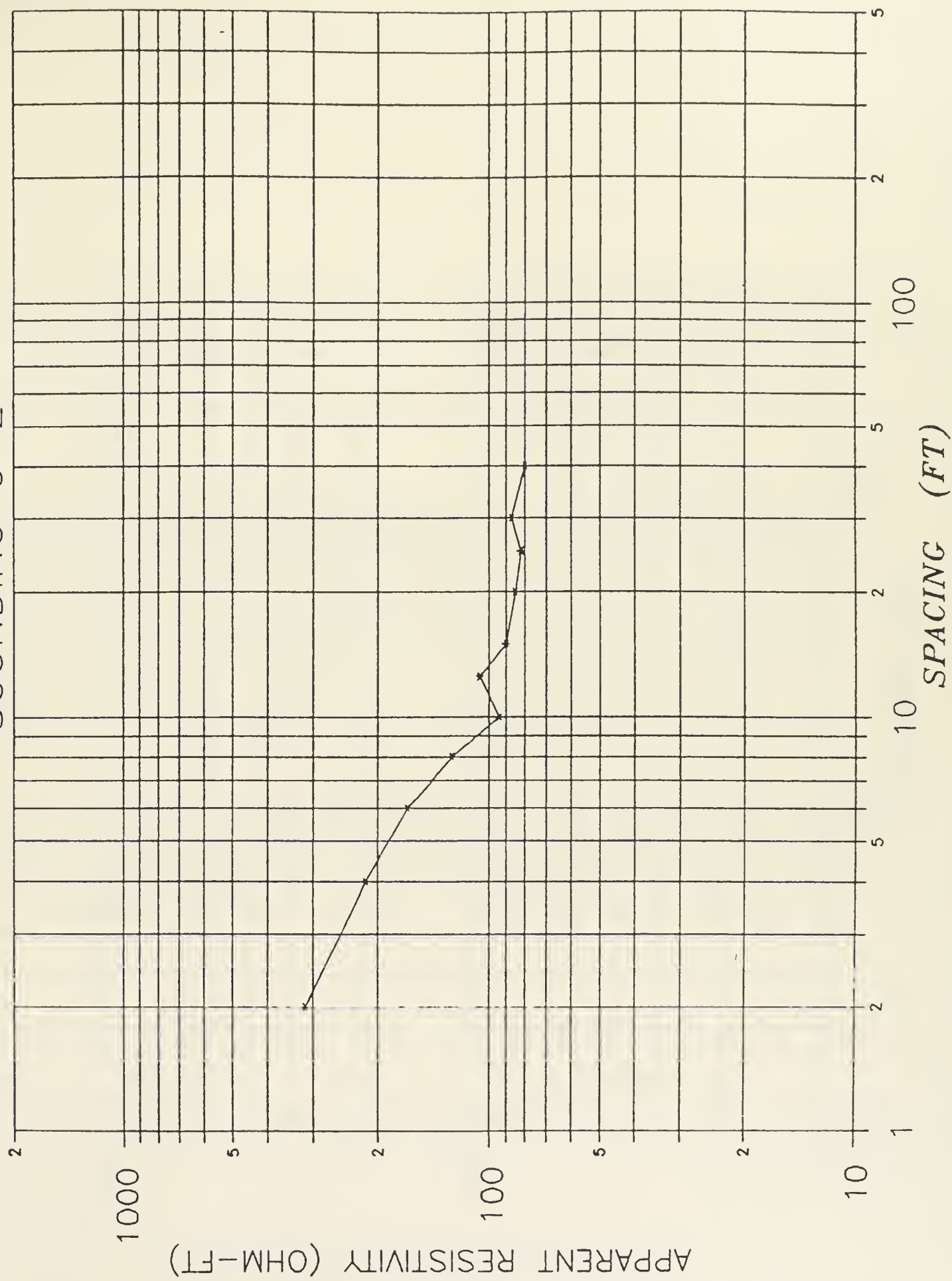
A-SPACING (FT)

100

10



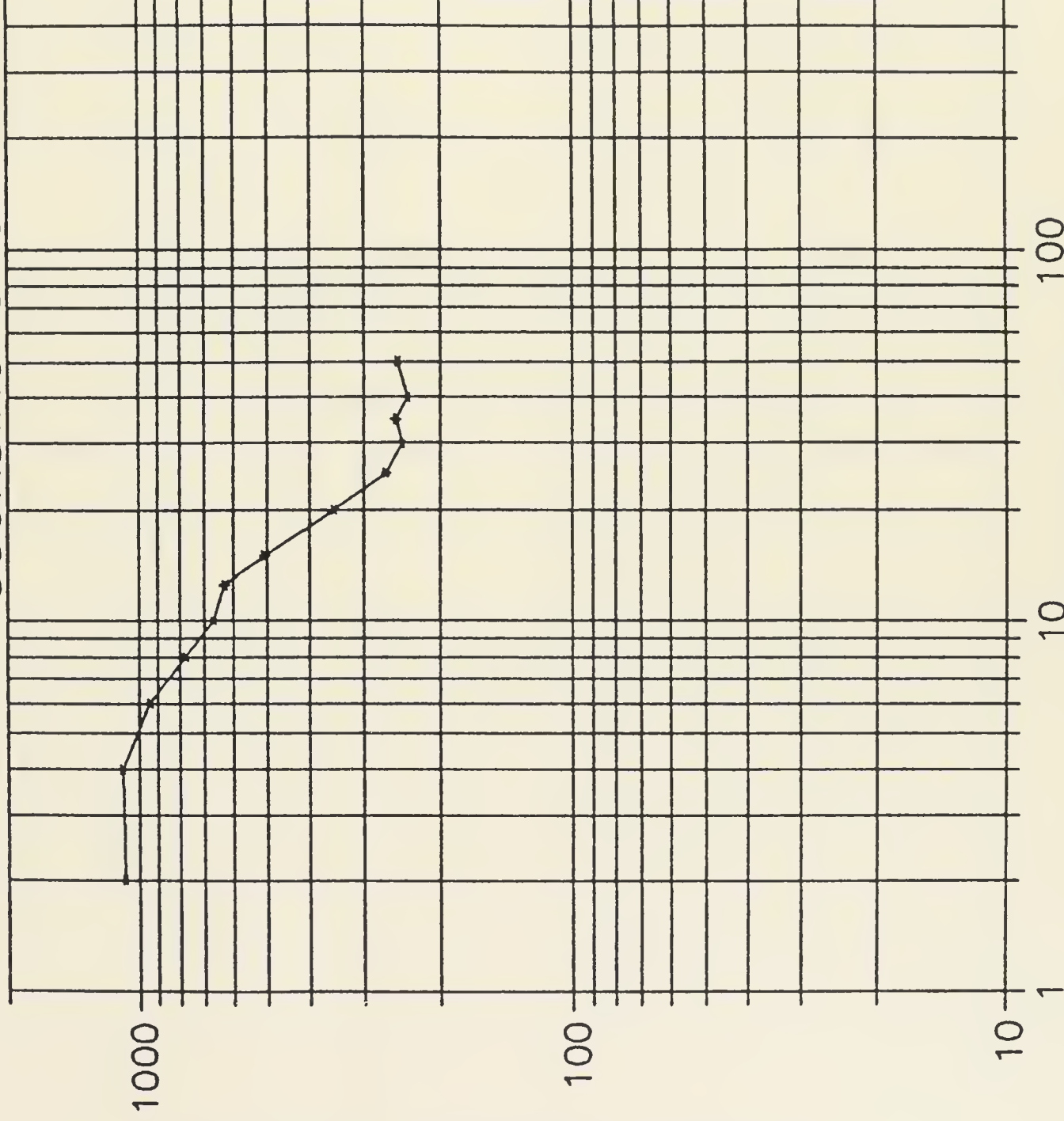
SOUNDING C-2



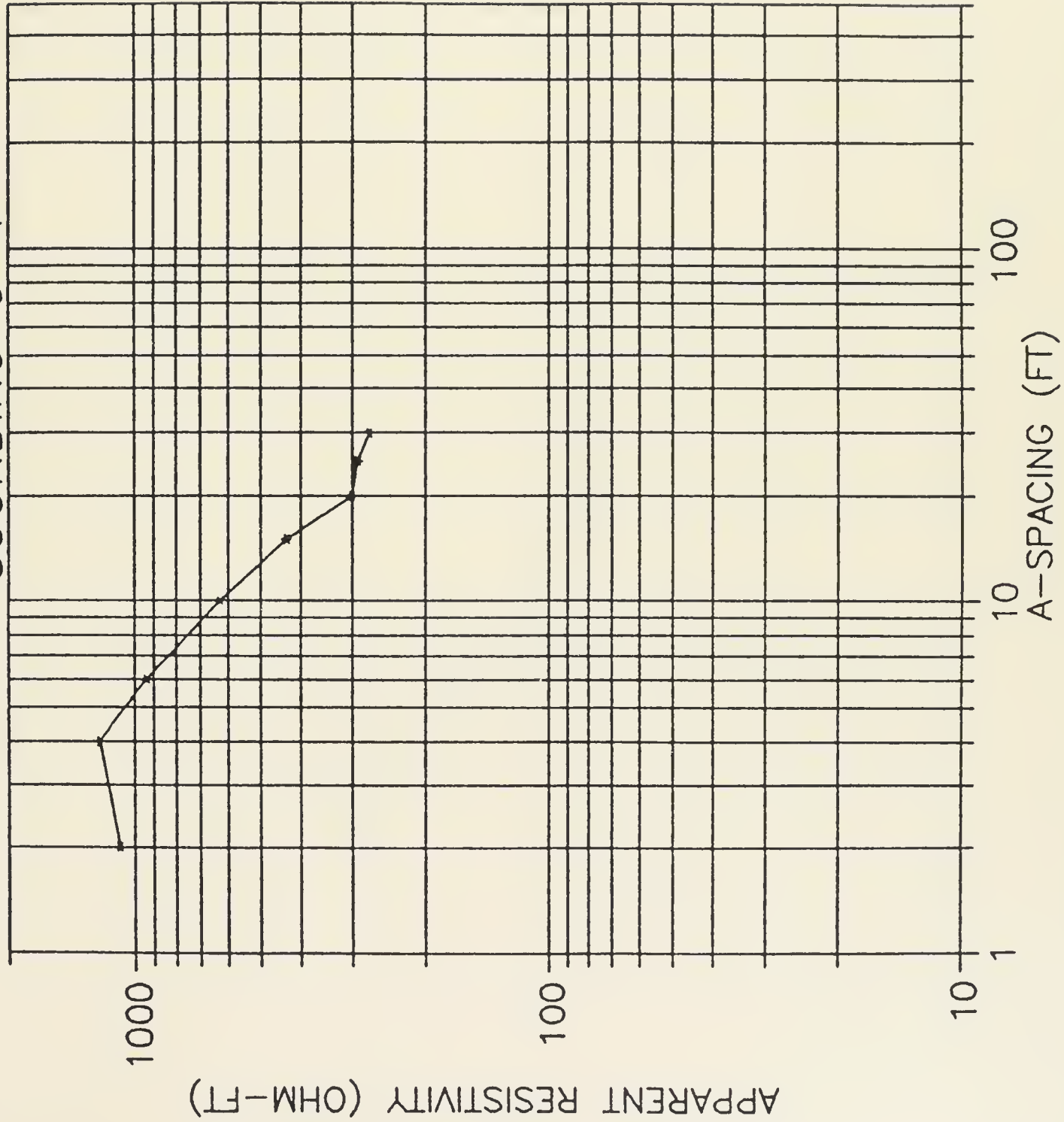
SOUNDING C-3

APPARENT RESISTIVITY (OHM-FT)

A-SPACING (FT)



SOUNDING C-4



SOUNDING C-5

1000

APPARENT RESISTIVITY (OHM-FT)

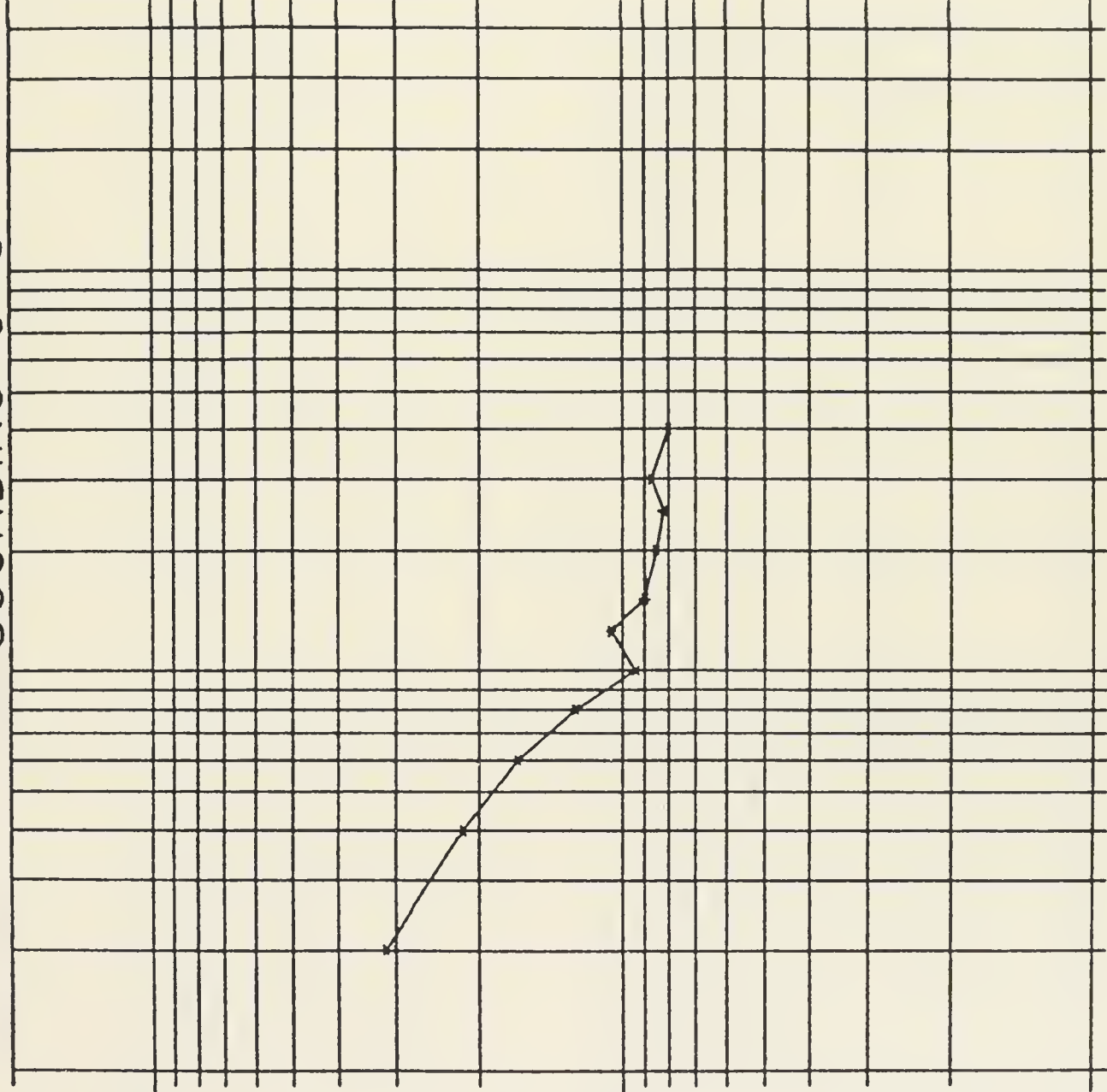
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10

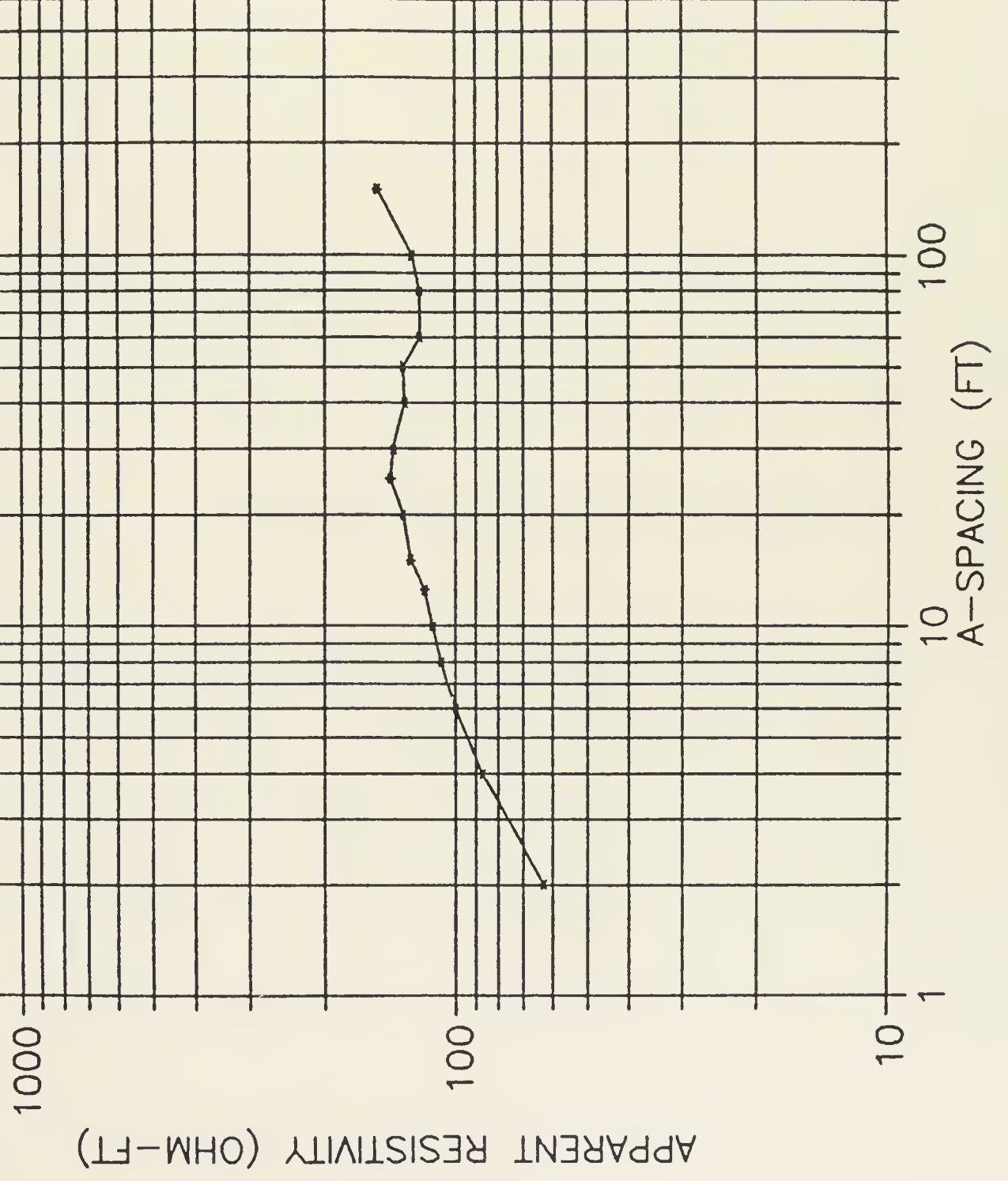
100

A-SPACING (FT)

1



SOUNDING C-6



SOUNDING C-7

1000

APPARENT RESISTIVITY (OHM-FT)

100

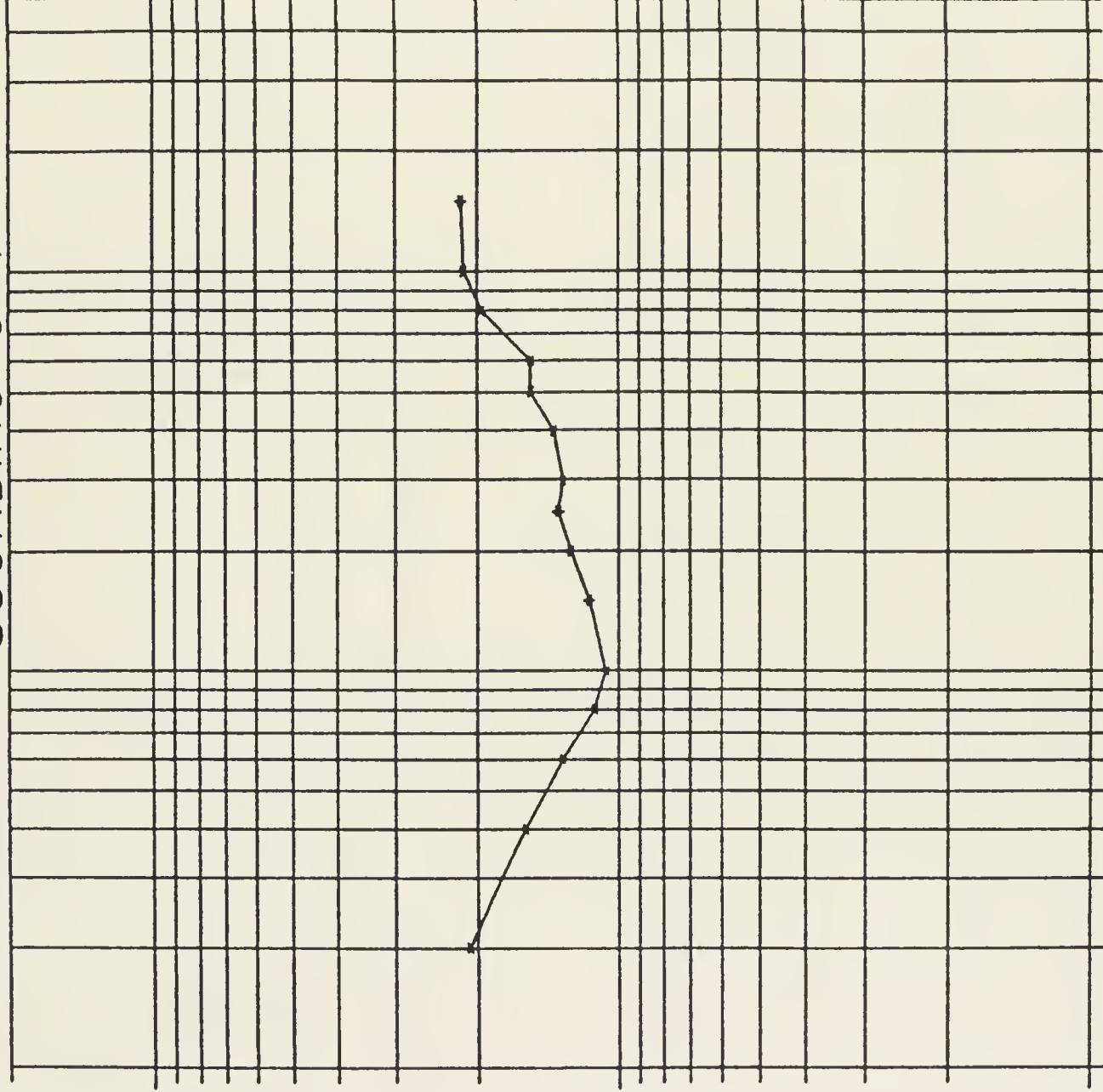
10

1

10

A-SPACING (FT)

100



SOUNDING C-8

1000

APPARENT RESISTIVITY (OHM-FT)

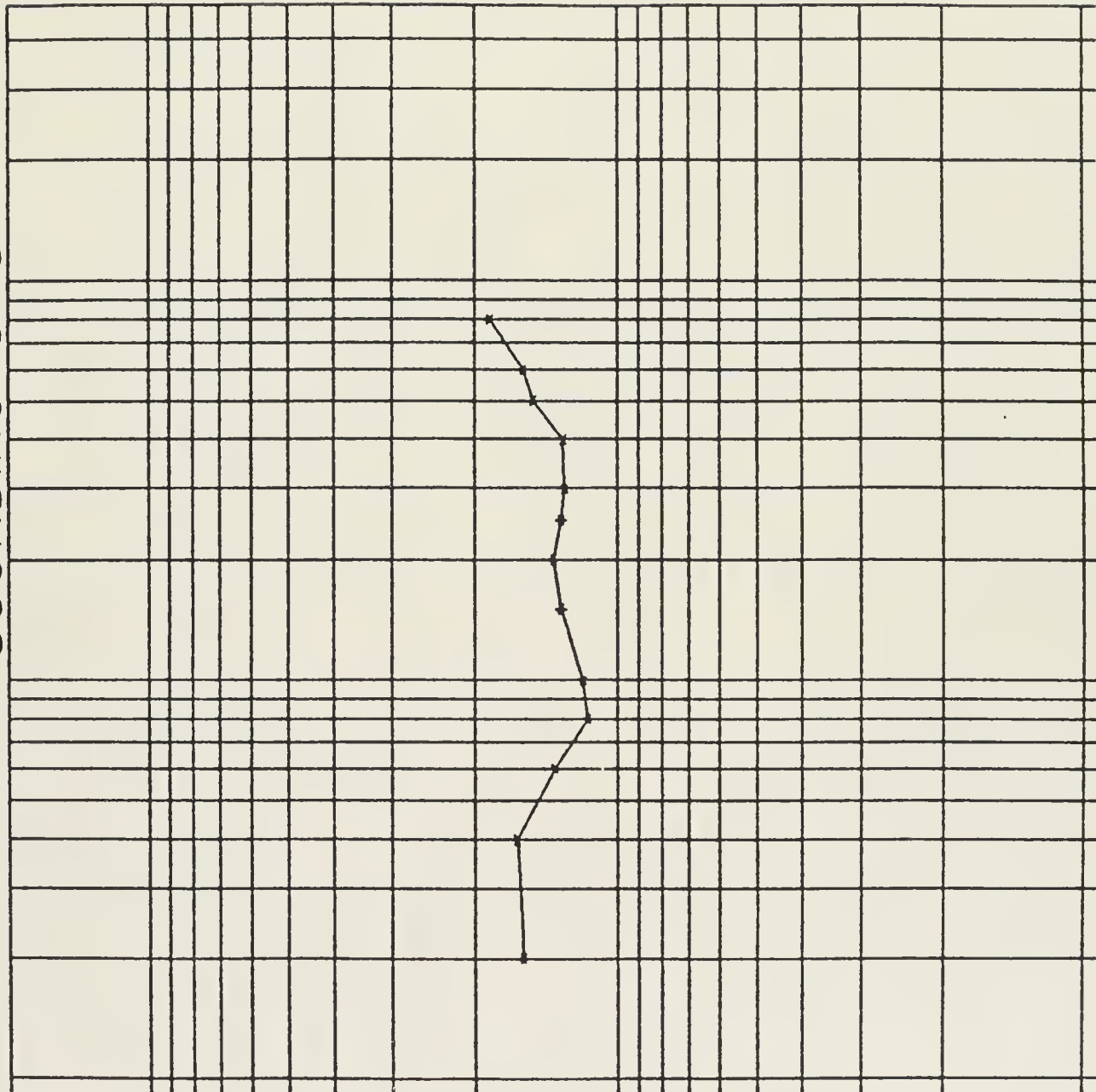
100

10

100

10

A-SPACING (FT)



STATION: A-1 (SEE FIGURE 3-1)

Location: Baseball diamonds north of city-county shop, N-S line - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	586	368	
2	10	292	367	
4	20	278	349	
10	20	159	500	
16	20	79	397	
30	50	45	170	
50	100	28	88	
100	100	18	113	
80	100	20	100	
60	100	22	83	
25	100	190	298	
6	50	562	423	

STATION: A-2 (SEE FIGURE 3-1)

Location: Parrott tailings, N-S trending, adjacent to FAA building SE of Butte - Silver Bow County Shop Complex - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
5	100	1200	377	
10	100	605	380	
15	100	360	339	
20	100	273	343	
25	100	174	273	
30	100	124	234	
40	100	65	163	
60	100	34	128	
80	100	20	101	
100	100	14	88	
150	100	9	85	
200	100	7	88	
125	100	11	86	

STATION: A-3 (SEE FIGURE 3-1)

Location: A-3; approximately 300' W of City-County Shop complex, next to civic center parking lot, N-S line - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	280	176	
4	20	211	265	
6	20	176	332	
8	20	146	367	
10	20	112	352	
15	20	62	292	
20	20	38	238	
25	20	25	196	
30	20	15	141	
30	50	38	143	
40	50	17	85	
40	100	35	88	
50	100	19	59	
60	100	13	49	
80	100	11	55	
100	100	9	56	
150	100	7	66	Storm sewer & gas line @ N end

STATION: A-4 (SEE FIGURE 3-1)

Location: A-4; immediately south of MSD at City-County Shop storm outfall - June 1, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	150	94	
4	20	97	122	
6	20	83	156	
8	20	65	163	
10	20	56	176	
15	20	34	160	
20	50	23	145	
25	50	43	135	
30	50	34	128	
40	50	25	125	
60	100	30	113	
80	100	20	100	
100	100	15	94	
150	100	9	85	
200	100	5	62	
250	100	5	78	

STATION: A-5 (SEE FIGURE 3-1)

Location: S of Baseball field and N of State Highway Department - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	222	139	
4	20	166	208	
6	20	143	269	
8	20	127	319	
10	20	112	352	
15	20	81	382	
20	20	68	427	
25	20	61	479	
30	20	53	499	
40	20	36	452	
50	20	22	345	
60	20	17	320	
80	50	21	211	Possible interference by sewer
100	100	21	132	
150	100	9	85	
200	100	6	75	
250	100	7	132	

STATION: A-6 (SEE FIGURE 3-1)

Location: S of county shop on S side of MSD; E-W line; W of A-4 - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	333	209	
4	20	222	279	
6	20	201	379	
8	20	190	477	
10	20	164	515	
15	20	108	509	
20	20	74	464	
25	20	52	408	
30	10	18	339	
40	10	8	201	
60	100	28	106	
80	100	18	90	
100	100	12	75	
150	100	7	66	

STATION: A-6 (SEE FIGURE 3-1)

Location: Between SBC & I-90 on top of tailings impoundment Mn stockpile. NS line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	332	208	
4	20	127	159	
6	20	70	132	
8	20	45	113	
10	20	34	107	
15	100	123	116	
20	100	101	127	
25	100	86	135	
30	100	70	132	
40	100	55	138	
50	100	49	154	
60	100	41	154	
80	100	39	196	
100	100	34	214	
150	100	23	217	

STATION: A-7 (SEE FIGURE 3-1)

Location: Clark Park near Weed Concentrator, N-S Line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	934	461	
4	20	590	741	
6	20	477	899	
8	20	393	987	
10	20	326	1024	
15	20	247	1163	
20	20	186	1168	
25	20	149	1169	
30	20	105	989	
40	20	49	615	
60	20	19	358	
80	50	28	281	
100	50	20	251	
150	100	17	160	
200	100	9	113	
250	100	45	707	

STATION: A-8 (SEE FIGURE 3-1)

Location: Hebgen Park, N-S line - June 8, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	500	314	
4	20	248	311	
6	20	144	271	
8	20	104	261	
10	20	74	232	
12.5	20	66	236	
15	20	35	165	
20	20	30	188	
30	20	19	179	
25	20	23	180	
40	50	34	171	
50	50	28	176	
60	50	26	196	
80	100	48	241	
100	100	32	201	
15	20	48	226	

STATION: A-9 (SEE FIGURE 3-1)

Location: N of Continental at gas substation - June 8, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	1300	817	
4	20	949	1192	
6	20	702	1323	
8	20	550	1382	
10	20	436	1370	
12.5	20	335	1315	
15	20	278	1310	
20	20	197	1238	
25	20	137	1096	
30	20	100	942	
40	20	62	779	
50	20	38	597	
60	20	27	509	
80	50	34	342	
100	50	20	251	
120	100	33	249	
150	100	20	188	
200	100	12	151	

STATION: A-10 (SEE FIGURE 3-1)

Location: E of Texas Ave., S. of Continental - June 9, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	980	615	
4	20	664	834	
6	20	517	974	
8	20	368	924	
10	20	305	958	
15	20	175	824	
20	20	111	697	
25	20	77	605	
30	20	58	546	
40	20	34	427	
50	20	20	314	
60	50	33	249	
80	100	26	131	
100	100	17	107	
120	100	11	83	
150	100	9	85	
200	100	6	75	
250	100	5	79	

STATION: A-11 (SEE FIGURE 3-1)

Location: Alley behind bad domestic well - June 9, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	573	360	
4	20	411	516	
6	20	367	692	
8	20	321	807	
10	20	282	886	
15	20	204	961	
20	20	151	949	
25	20	109	856	
30	20	69	650	
40	20	35	440	
50	20	23	361	
60	50	41	309	
80	50	19	191	
100	100	16	100	
150	100	5	47	

STATION: B-1 (SEE FIGURE 3-1)

Location: E-W transect adjacent to monitoring wells GS-08, 09, & 11 - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
4	50	65	32	Depth to water approximately 10' BGS
6	100	108	41	
10	100	76	48	
15	100	59	56	
20	100	52	65	
30	100	40	75	
50	100	25	78	
80	100	15	75	
100	100	12	75	
150	100	9	85	
200	100	7	88	

STATION: B-2 (SEE FIGURE 3-1)

Location: Approximately 150' south of GS-08, 09, 11; E-W line - June 1, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	228	143	
4	20	156	196	
6	20	124	233	
8	20	92	231	
10	20	65	204	
15	20	30	141	
20	20	18	113	
20	50	46	115	
25	50	34	107	
30	50	26	98	
40	50	20	101	
50	100	31	97	
60	100	25	94	
80	100	17	85	
100	100	14	88	
150	100	8	75	
200	100	4	50	
250	100	5	78	

STATION: B-3 (SEE FIGURE 3-1)

Location: Approximately 300' SE of hockey rink at Kaw Ave. N-S trending line - June 1, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	991	622	
4	20	640	804	
6	20	412	776	
8	20	275	691	
10	20	152	477	
15	20	59	278	
20	20	30	188	
25	50	42	132	
30	50	32	121	
40	50	21	105	
50	100	30	94	
60	100	24	90	
80	100	19	95	
100	100	15	94	
150	100	10	94	
200	100	7	88	

STATION: B-4 (SEE FIGURE 3-1)

Location: Approximately 300' SE of hockey rink at Kaw Ave. N-S trending profile line; 150' S of B-3 - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	804	505	
4	20	334	419	
6	20	225	424	
10	20	98	308	
20	20	32	201	
30	20	17	160	
40	50	29	146	Dropped off slope at S. boundary

STATION: B-5 (SEE FIGURE 3-1)

Location: Approximately 300' SE of hockey rink at Kaw Ave. N-S trending profile line; 150' S of B-3 - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	50	1167	293	
4	50	473	238	
6	50	441	333	
10	50	272	341	
15	50	146	275	
20	50	85	213	
30	50	42	158	
40	50	25	125	

STATION: B-6 (SEE FIGURE 3-1)

Location: 50' S of B-3 - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	50	1956	492	
4	50	1276	641	
6	50	988	745	
10	50	398	500	
15	50	151	284	
20	50	68	171	
30	50	43	162	
40	50	24	120	

STATION: B-7 (SEE FIGURE 3-1)

Location: 50' N of B-3 - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2				
4	10	400	1005	
6	10	219	825	
10	10	56	352	
15	10	34	320	
20	10	24	302	
30	50	40	151	
40	50	20	100	

STATION: B-8 (SEE FIGURE 3-1)

Location: 100' N of B-3 - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	892	560	
4	20	497	625	
6	20	219	413	
10	20	116	364	
15	20	56	264	
20	20	29	182	
30	50	25	94	
40	50	16	80	

STATION: B-9 (SEE FIGURE 3-1)

Location: 150' N of B-3, June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	10	1062	1335	
4	10	451	1133	
6	10	236	890	
10	10	104	653	
15	10	24	226	
20	20	25	157	
30	50	24	90	
40	50	22	110	

STATION: B-10 (SEE FIGURE 3-1)

Location: Approximately 250' NNE of GS-08; EW line, approximately 75' S of MSD - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	10	63	79	
4	10	36	90	
6	10	25	94	
8	20	34	85	
10	20	23	72	
15	50	40	73	
12.5	50	50	79	
20	50	35	88	
25	50	29	91	
30	50	25	94	
40	50	16	80	
40	100	31	78	
50	100	24	75	
80	100	13	65	
100	100	10	63	
150	100	6	56	
200	100	6	75	

STATION: B-11 (SEE FIGURE 3-1)

Location: 450' NW of housing complex. NW-SE line 100' N of MSD, June 6, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	460	289	
4	20	102	128	
6	20	44	83	
8	20	37	93	
10	20	30	94.2	
12.5	20	24	94.2	Well probe located in mud next to creek. Creek is 1/2" below ground surface.
15	50	38	71	
20	50	26	65	
25	50	21	69	
30	100	37	69	
50	100	21	66	
60	100	19	71	
80	100	13	65	
104	100	11	72	
150	100	7	66	
200	100	4	50.24	

STATION: B-12 (SEE FIGURE 3-1)

Location: 150' S of tracks, SW of rail yard, E-W line - June 6, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	343	215	
4	20	225	283	
6	20	172	324	
8	20	132	331	
10	20	104	326	
15	20	71	334	
20	20	53	333	
24	20	39	294	
30	20	26	245	
40	50	32	161	
50	50	21	132	
60	100	30	113	
80	100	18	90	
100	100	13	81	
150	100	10	94	
175	100	7	77	
200	100	7	88	

STATION: B-13 (SEE FIGURE 3-1)

Location: 300' W of the MET Bar, E-W line - June 6, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	315	198	
4	20	94	118	
6	20	33	64	
8	50	35	35	
10	50	22	28	
12.5	100	36	28	
15	100	34	32	
20	100	39	49	
30	100	35	65	
40	100	24	60	
50	100	19	60	
60	100	20	75	
80	100	16	80	
100	100	12	75	
150	100	7	66	
200	100	5	63	
250	100	3	47.1	

STATION: B-14 (SEE FIGURE 3-1)

Location: 300' W of the MET Bar, N-S Line - June 6, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	190	119	
4	20	99	124	
6	20	64	120	
8	20	41	103	
10	20	27	85	
15	50	40	75	
20	50	35	88	
30	50	21	79	
25	50	29	91	
40	100	32	80	
50	100	25	78	
60	100	18	68	
80	100	14	70	
100	100	9	56	
130	100	7	57	

STATION: B-15 (SEE FIGURE 3-1)

Location: 200' N of the ice rink at KOA E-W Line - June 6, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	71	44	
4	20	50	63	
6	20	36	68	
8	20	26	65	
10	100	117	73	
12	100	99	74	
15	100	83	78	
20	100	67	84	
30	100	47	88	
40	100	34	85	
50	100	28	88	
70	100	20	88	
90	100	15	85	
150	100	8	75	
200	100	8	100.5	
220	100	7(8)	97	

STATION: B-16 (SEE FIGURE 3-1)

Location: 125' S of tracks, SW of railyard, N-S line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	376	236	
4	20	242	304	
6	20	178	335	
8	20	143	359	
10	20	118	371	
15	20	84	396	
20	20	56	351	
25	20	41	322	
30	20	29	273	
40	50	45	226	
60	50	24	181	
80	100	23	116	
100	100	13	82	
150	100	9	85	
160	100	8	80	

STATION: B-17 (SEE FIGURE 3-1)

Location: 250' N of ice rink, N-S line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	104	65	
4	20	125	157	
6	20	56	106	
8	20	41	103	
10	20	34	107	
15	20	23	108	
20	50	40	100	
30	50	30	113	
50	100	29	91	
40	100	38	95	
60	100	24	90	
80	100	17	85	
100	100	14	88	

STATION: B-18 (SEE FIGURE 3-1)

Location: N side MSD at 600 S of railyard - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	108	68	Ground Moist
4	20	63	79	
6	20	40	75	
8	20	31	78	
10	50	62	78	
15	50	44	83	
20	50	34	85	
30	50	23	87	
40	100	35	88	
50	100	27	85	
70	100	17	75	
90	100	12	67	
150	100	6	57	
200	100	5	62.8	
250	100	5	78	

STATION: B-19 (SEE FIGURE 3-1)

Location: N side MSD at 550' S of railyard - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	60	38	GW at 1.5'-2.0'
4	20	37	46	
6	20	21	40	Possible steel water line in area
8	20	16	40	
10	50	28	35	
15	50	16	30	
20	100	21	26	
30	100	14	26	
40	100	10	25	
60	100	8	30	
80	100	6	30	
150	100	5	47	
100	100	5	31	

STATION: B-20 (SEE FIGURE 3-1)

Location: 200' E of transformer station, N-S line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	435	273	
4	20	149	187	
6	20	84	158	
8	20	52	130	
10	20	40	126	
15	20	23	108	
20	20	18	113	
25	100	85	133	
30	100	75	141	
40	100	62	153	
50	100	49	154	
60	100	40	151	
80	100	31	156	
100	100	20	126	
150	100	16	150	
160	100	14	141	

STATION: B-21 (SEE FIGURE 3-1)

Location: 200' NE of transformer station; E-W line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	170	107	
4	20	93	117	
6	20	58	109	
8	20	46	116	
10	20	35	110	
15	20	26	122	
20	20	22	138	
25	100	91	143	
30	100	80	151	
40	100	60	151	
60	100	41	154	
80	100	31	156	
100	100	25	157	
150	100	16	150.7	

STATION: B-22 (SEE FIGURE 3-1)

Location: 200' W of KOA E-W line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	462	290	
4	20	206	259	
6	20	164	309	
8	20	154	387	
10	20	109	342	
12.5	20	45	177	
15	20	127	127	
20	20	15	94	
25	100	49	77	
30	100	48	90	
40	100	36	90	
50	100	14	44	
60	100	29	109	
50	100	33	104	
80	100	20	101	
100	100	18	113	
150	100	11	104	

STATION: B-23 (SEE FIGURE 3-1)

Location: 400' NW of the KOA & 20' S of the MDS E-W line - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	175	110	
4	20	99	124	
6	20	77	145	
8	20	59	148	
10	20	49	154	
15	20	24	113	
12.5	20	35	137	
20	50	40	101	
25	50	31	97	
30	50	27	102	
40	50	20	100	
50	50	16	100	
60	100	24	90	
80	100	16	80	
100	100	12	75	
150	100	9	85	

STATION: B-24 (SEE FIGURE 3-1)

Location: E-W line W of B-23 SE of the confluence of the MSD & Blacktail Creek - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	430	270	
4	20	240	301	
6	20	133	251	
8	20	64	161	
10	20	40	126	
12.5	20	23	90	
15	20	20	94	
20	50	34	85	
25	50	26	82	
30	100	41	77	
40	100	30	75	
50	100	19	60	
60	100	16	60	
80	100	14	70	
100	100	11	69	

STATION: C-1 (SEE FIGURE 3-1)

Location: South end of Colorado tailings; E-W transect - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
1	20	278	87	
2	20	140	88	
3	20	89	84	
4	20	63	79	
5	20	49	77	
6	20	39	74	
8	20	27	68	
10	20	22	69	
12	50	48	72	
14	50	45	79	
16	50	43	86	
18	50	40	90	
20	50	40	100	
25	50	34	107	
30	50	31	116	
35	50	28	123	
40	50	26	130	
50	50	22	138	
60	50	20	150	
80	100	36	181	
100	100	32	201	

STATION: C-2 (SEE FIGURE 3-1)

Location: Near center of Colorado tails approximately 200' N of C-1; N-S transect; site is within N-S trending channel - May 31, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	100	772	97	
4	100	461	116	
6	100	353	133	
10	100	216	136	
15	100	137	129	
20	100	97	122	
25	100	75	118	
30	100	64	121	
40	100	53	133	
60	100	40	151	

STATION: C-3 (SEE FIGURE 3-1)

Location: Mn stockpile area, approximately 250' W of present Missoula Gulch, E-W line - June 2, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	10	860	1,080	
4	10	435	1,093	
6	10	250	942	
8	10	154	774	
10	10	106	666	
12.5	10	80	628	
15	10	54	508	
20	10	28	351	
25	20	34	267	
30	20	26	245	Bedrock
35	20	23	253	
40	20	19	238	
50	50	40	251	

STATION: C-4 (SEE FIGURE 3-1)

Location: Same as C-3 but N-S line - June 2, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	10	860	1,081	
4	10	480	1,206	
6	10	249	938	
10	10	100	628	
15	10	46	433	
20	10	24	301	
25	20	37	291	
30	20	29	273	

STATION: C-5 (SEE FIGURE 3-1)

Location: North cell Butte Reduction Works - June 5, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	502	315	
4	20	172	216	
6	20	88	166	
8	20	50	126	
10	20	30	94	
15	20	19	90	
20	50	34	85	
12.5	20	27	106	
25	20	20	157	
30	50	23	87	
25	50	26	82	
40	50	16	80	

STATION: C-6 (SEE FIGURE 3-1)

Location: In Mn stockpile west of old train track in high Zn zone - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	100	62.8	
4	20	69	87	
6	20	53	100	
8	20	43	108	
10	20	36	113	
12.5	20	30	118	
15	20	27	127	
20	20	21	132	
25	20	18	141	
30	50	37	139	
40	50	26	131	
50	50	21	132	
60	50	16	121	
80	100	24	121	
100	100	20	126	
150	100	16	151	

STATION: C-8 (SEE FIGURE 3-1)

Location: E-W line transecting C-7 at its midpoint - June 7, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	20	252	158	
4	20	130	163	
6	20	72	136	
8	20	46	116	
10	20	38	119	
15	20	28	132	
20	100	104	137	
25	100	84	132	
30	100	69	130	
40	100	52	131	
50	100	48	151	
60	100	42	158	
80	100	37	186	

STATION: D-1 (SEE FIGURE 3-1)

Location: Approximately 500' W of Co. tails on bedrock S. of SBC - June 14, 1989

"A" Spacing (feet)	I (milliamps)	V (millivolts)	Apparent Resistivity (ohm-ft)	Comments
2	10	670	842	
4	10	368	125	
6	10	253	954	
8	10	181	910	
10	10	140	880	
12.5	10	133	1045	
15	10	104	980	
20	10	87	1093	
25	10	66	1037	
30	10	55	1037	
40	10	30	754	
50	10	19	597	
60	20	35	660	
80	20	19	478	

APPENDIX B-2

Monitoring Well Completion and Lithologic Logs

TEST HOLE LDG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-16

Legal Location: T 3N R 8W Sec 24 Tract CBB Descriptive North Cell Butte Reduction Works; Location: Main area - same as AI-SD-504

Recorded Hole Started: Hole Completed: Drilling
By: P. Dunlavy Time: 1030 Date: 06/20/89 Time: _____ Date: 06/20/89 Driller: Butch Company: Chen-Northern

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9 1/2" flight Reamed Hole Diameter: N/A

Total Depth Drilled: 17.5' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 16.2' Diameter and Type of Casing: 2" PVC Tri-Loc

Weight or Gauge of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 16.2'-11.2' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	_____	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>8.63'</u>	Date: <u>6/20/89</u>		<u>X</u> Other (specify) <u>.02" Factory</u>

Measuring Point Description/Elevation: Top of Steel/N Side/ 5440.37 MP Height Above (+/-) or Below G.S.: + 2.0'

Well Annulus Completion Description: 10-20 Colorado Silica sand 17.0'-10.2'; 1/4" Bentonite pellets 10.2' - 9.2';

Volclay grout without initiator 9.2' to surface

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	6.0	Sand with minor silt - two layers of yellow and white tailings at 0.8 to 1.0' and 1.3' to 1.5'; slightly moist, loose; sand is fine to coarse, dark brown, inter-bedded sand and tailings
6.0	17.5	Sand with silt; fine grained; 2" coarse grained lense at 7"; brown, saturated at 7', dark brown heaving sand to 17.5'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-17S

Legal Location: T 3N R 8W Sec 24 Tract CBB Descriptive Location: Northeast corner of South Cell; Butte Reduction Works

Recorded Hole Started: Hole Completed: Drilling
By: P. Dunlavy Time: 1600 Date: 06/29/89 Time: 1700 Date: 06/29/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 10.3' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 8.0' Diameter and Type of Casing: 2" Flush Threaded Tri-loc

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 3.0 to 8.0' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: N/A Date/Time Measured: 8/22/89 @ 0745

Measuring Point Top of steel well MP Height Above (+/-)
Description/Elevation: protector/5434.71 or Below G.S.: + 2.78'

Well Annulus

Completion Description: 10-20 Colorado Silica sand 2.0'-8.0'; Bentonite pellets 1.0-2.0'

Remarks: Concrete grout steel well protector at surface

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1.0	Sand, brown, fine to coarse sand with ~30% silt, some weathered slag.
1.0	2.5	Tailings, medium sand-size tailings, light yellow, moist, well sorted, clean
2.5	10.3	Sand, brown, water at 3.0 feet while drilling; coarse sub-angular sand with ~ 30% silt, sand is well sorted and heaving into augers, no apparent change to I.D.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-17D

Legal Location: T 3N R 8W Sec 24 Tract CBB Descriptive Location: SE cell of Butte Reduction Works

Recorded Hole Started: Hole Completed: Drilling
By: IG Time: _____ Date: 07/31/89 Time: _____ Date: 07/31/89 Driller: Lock Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: None Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 28' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 27.7 Diameter and 2" PVC Type of Casing: (flush threaded)

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 17.7'-27.7' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			<u>X</u> Other (specify) <u>.02" factory</u>

Static

Water Level: 3.18 Date/Time Measured: 8/22/89

Measuring Point Description/Elevation: Top of steel/5434.10' MP Height Above (+/-) or Below G.S.: + 2.15'

Well Annulus Completion Description: Sand foot 28-27.7', Colorado Silica sand 27.7-17.1', Bentonite pellets 17.1-15.6'.

Enviroplug to surface

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	16	Dark gray to black clayey gravelly sand. Sand is medium to fine grained with finer portion predominating; grains are well-rounded to sub-rounded with medium to high sphericity. Larger clasts are present but infrequent and are angular to sub-angular, moderately low sphericity. All clasts are quartz with few lithics present. Fines - 50%.
16	20	Brown to dark brown clayey sand and gravel. Coarse sand and gravels are angular to sub-angular with low sphericity. Medium sand is dominant size, with clasts rounded to sub-rounded with moderately high sphericity. Micas increasing, but still not a significant portion. Fines - 30% - 50% lithic fragments more prevalent than above.
20	28	Alternating sequences of gravels and sands with low fines contents (<30%). Each sequence is a clayey sand/clayey gravels. Significant portion of micas and lithic fragments.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-18

Legal Location: T 3N R 8W Sec 23 Tract DAD Descriptive Southwest corner of South cell; Location: Butte Reduction Works

Recorded Hole Started: Hole Completed: Drilling
By: PD Time: 0830 Date: 06/30/89 Time: 1100 Date: 06/30/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9 1/2" Reamed Hole Diameter: N/A

Total Depth Drilled: 20.0' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 16.0' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 11.0 to 16.6' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: 9.99' Date/Time Measured: 8/25/89

Measuring Point Description/Elevation: Top of steel well protector/5439.08 MP Height Above (+/-) or Below G.S.: + 2.19'

Well Annulus Completion Description: Heaving sand 20.0-18.0'; 10-20 Colorado Silica sand 18.0-9.8'; 1/4" Bentonite pellets 9.8-7.0'; pure gold grout 7.0-1.5'; 0.25" Bentonite 1.5-0.3'

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	3	Sand; brown, medium to fine, dry, several slag fragments, occasional charcoal and wood fragments.
3	3.5	Tailings; yellow-brown, medium to fine sand.
3.5	5	Silt; gray, firm, occasional sand lenses.
5	8	Sand and gravel; black, comprised primarily of slag, minor yellow and orange silt, wet.
8	14.5	Sand; brown, silty, organic-rich 8-9.5', fine-grained.
14.5	20.0	Sand; brown, slightly silty, heaving sand.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-19

Legal Location: T 3N R 8W Sec 24 Tract CBB Descriptive Location: 50' E of Butte Reduction Works Roadcut

Recorded Hole Started: Hole Completed: Drilling
By: PD Time: 1130 Date: 06/30/89 Time: 1330 Date: 06/30/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 22.5' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 18.5' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 13.5' to 18.5' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: 12.4' Date/Time Measured: 8/24/89

Measuring Point Description/Elevation: Top of steel/5445.26' MP Height Above (+/-) or Below G.S.: + 1.6'

Well Annulus Completion Description: 10-20 Colorado Silica sand 20.0-11.0': 1/4" Bentonite pellets 9.5-11': pure gold grout 1-9.5': 1/4" Bentonite pellets 1-2.0'

Remarks: Concrete grout steel well protector at surface

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	19.0	Dark brown to black silty sand; dry; sand is coarse, rounded, occasional black fragments, fill material to ~10'; occasional scattered gravel, ~1" diameter; sub-angular; water at ~10', no noticeable change in lithology. Heaving sand at ~16.0'.
19.0	22.5	Silty sand; dark brown; some clay; much tighter than above. Hole stays open at 19.0'+.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-20

Legal Location: T 3N R 8W Sec 24 Tract BCC Descriptive -200' West of Missoula Gulch;
Location: -100' South of Centennial Avenue

Recorded By: P. Dunlavy Hole Started: Time: 1300 Date: 07/05/89 Hole Completed: Time: 1500 Date: 07/05/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 25' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 23' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 18 to 23' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u>17.09'</u>		Date: <u>8/24/89</u>	<u>X</u> Other (specify) <u>.02" Factory</u>

Measuring Point Description/Elevation: Top of Steel Well Protector/5457.20' MP Height Above (+/-) or Below G.S.: + 1.92'

Well Annulus Completion Description: 10-20 Colorado Silica sand 25-18.0'; 1/4" Bentonite pellets 18.0-16.5'; Pure gold grout 16.5-2.0'; 1/4" Bentonite pellets 2.0-0'; Concrete grout with steel well protector at surface.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	21.0	Dark brown silty sand; fine to medium sand with ~30% silt; occasional small gravel; slightly moist. Occasional gravel at 6'. Moist at 14.5'. Water at 15'. bedded sand and tailings
21.0	25.0	Sandy silt; more silt and clay than sand; sticky, tight. Very few, if any, gravel-sized clasts. Slightly oxidized, dark brown to orange.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-21S

Legal Location: T 3N R 8W Sec 24 Tract CBD Descriptive Location: 500' South of SBC, 200' North of MPC storage yard

Recorded Hole Started: Hole Completed: Drilling
By: M. Egan Time: 1545 Date: 07/05/89 Time: 1700 Date: 07/05/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 23.0' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 21.0' Diameter and Type of Casing: 2" Flush Threaded Stainless Steel

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 11 to 21' Target Aquifer: Fill Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: N/A Date/Time Measured: 8/22/89 @ 0745

Measuring Point Description/Elevation: Top of Steel/5447.61' MP Height Above (+/-) or Below G.S.: + 1.57

Well Annulus Completion Description: 10-20 Colorado Silica sand 9.5-23.0'; 1/4" Bentonite pellets 8.0-9.5'; Pure gold grout 2.0-8.0'; 1/4" Bentonite pellets 0-2'; Concrete grout with steel well head protector.

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	4.5	Silt; black, minor sand and clay, well-vegetated at surface.
4.5	23	Clay; black, moist, silty; medium cohesiveness, looks like flue dust, very homogeneous, well sorted, no apparent variation in grain size.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-21D

Legal Location: T 3N R 8W Sec 24 Tract CBD Descriptive Location: Reduction Works 7' S of 21S

Recorded By: IG Hole Started: Time: _____ Date: 07/31/89 Hole Completed: Time: _____ Date: 08/01/89 Driller: Lock Drilling Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: N/A Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 35' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 33.6 Diameter and Type of Casing: 2" PVC (Flush Threaded)

Weight or Gage of Casing: Sch. 40 PVC Interval Perforated or Screened Below G.S.: 23.6-33.6' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			<u>X</u> Other (specify) <u>.02" factory</u>

Static

Water Level: 13.02' Date/Time Measured: 8/25/89

Measuring Point Description/Elevation: Top of steel/5447.75' MP Height Above (+/-) or Below G.S.: + 1.84'

Well Annulus Completion Description: Sand foot 35-33.6', Sand 33.6-23.3', Bentonite pellets 23.3-22.8' Enviroplug grout to surface.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	24	Black to dark gray clayey goo. MV = -11. pH = 7.1. SC = 1100. Locally, some zones make water. 16' making slight amount of water; at 23', pH = 7.2. SC = 1067. MV = -13. T = 15
24	30	Gray to dark brown clayey sandy gravel. Sand fraction is moderately well sorted, rounded to sub-rounded, moderately high sphericity. Larger clasts are angular to sub-angular; larger clasts are mostly lithics. Fines ~30% of sample. Large mica flakes common. pH = 7.3. SC = 700. T = 12. MV = -16. Making water.
30	35	Brown clayey gravel as above. pH = 7.1. MV = -3. T = 15. SC = 650. heaving sands
		* Bedrock pick = 30'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-22

Legal Location: T 3N R 8W Sec 23 Tract DDB Descriptive Location: 200' N of I-90 and 75' S of railroad tracks

Recorded Hole Started: Hole Completed: Drilling
By: ME Time: 0755 Date: 07/06/89 Time: _____ Date: 07/06/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 20.3' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 15.0' Diameter and Type of Casing: 2" Flush Stainless Steel

Weight or Gauge of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 5.0-15.0' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			<u>X</u> Other (specify) <u>.03" Factory</u>

Static Water Level: 7.71' Date/Time Measured: 8/25/89

Measuring Point Description/Elevation: Top of steel, N side / 5435.91' MP Height Above (+/-) or Below G.S.: + 2.52'

Well Annulus Completion Description: 10-20 Colorado Silica sand 4.0-16.0'; Volclay grout 2.0-4.0'; 1/4" Bentonite pellets 1.5-2.0'; Concrete grout steel well protector

Remarks: Sand bridged while completing well; Had to complete well in open hole.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	4	Dark brown organics; occasional gravel, silty, sand; silt ~ 20%; moist; sand is rounded to sub-rounded
4	17	Light brown, minor small gravel, sandy, silty clay; moist. Water at 10'.
17	20.3	Light brown, sandy, silty, clayey, gravel. <200 ~ 40%
		No tailings encountered.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-23

Legal Location: T 3N R 8W Sec 23 Tract DBC Descriptive Location: -100' South of CO. Tails: Midway East-West

Recorded Hole Started: Hole Completed: Drilling
By: PD Time: 1100 Date: 07/06/89 Time: 1230 Date: 07/06/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: None Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 20.3' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 19.5' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 14.5-19.5' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: 15.27' Date/Time Measured: 8/24/89

Measuring Point Description/Elevation: Top of steel/5437.16' MP Height Above (+/-) or Below G.S.: + 1.5'

Well Annulus Completion Description: 10-20 Colorado Silica sand 13.5-20.3'; 1/4" Bentonite pellets 12.0-13.5; Pure gold grout 2.0-12.0'; 1/4" Bentonite pellets 1.0-2.0'; Concrete grout, steel well protector at surface

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1.5	Sand, gravels, dry, tan to orange
1.5	5.0	Sand; dark brown, slightly moist, more silt than above. Occasional granitic fragments (gravel-sized).
5.0	9.0	Sand with silt and clay; slightly moist, some gravel at ~8.0'. Cuttings ball up.
9.0	14.0	Sandy silt; greenish tint, more silt than above, lots of pea-sized gravel; Mostly quartz; possibly H ₂ O at 15.0'.
14	20.3	Gravel; Moderately rounded pea gravel with minor sand and silt, cuttings ball up, appears tight.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-24S

Legal Location: T 3N R 8W Sec 23 Tract DAA Descriptive Location: 200' SE of Sewage Treatment Plant next to fence

Recorded By: ME Hole Started: Time: 1345 Date: 07/06/89 Hole Completed: Time: 1530 Date: 07/06/89 Driller: Butch Drilling Company: CNI

Drill Method: Auger Drilling Fluids Used: N/A Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 15.0' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 14.5' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 9.5-14.5' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
Static Water Level: <u>7.12'</u>		Date: <u>8/22/89</u>	<u>X</u> Other (specify) <u>.02"</u>

Measuring Point Description/Elevation: Top of Steel / 5434.10' MP Height Above (+/-) or Below G.S.: + 1.77

Well Annulus Completion Description: 10-20 Colorado Silica sand 8.5-14.5'; 1/4" Bentonite pellets 7.5-8.5'; Pure gold grout 2.0-7.5'; 1/4" Bentonite pellets 1.0-2.0'

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2.0	Silty sand; brown, organics, minor pea gravel
2.0	9.0	Sandy, pebbly, cobbly fill; Brown fines; Cobbles sub-angular to sub-rounded, very large slag cobbles, very large voids, green/blue staining on slag
9.0	15.0	Silty sand; dark brown to black; occasional oxidized zones, sticky silt clay matrix; Looks tight
		Slag from 2.0 to 9.0 is large, sub-angular cobbles to boulders, amorphic, copper staining prevalent.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GW-GS-24DLegal Location: T 3N R 8W Sec 23 Tract DAA Descriptive Location: STP yard, E end, 5' S of AI-GW-GS-24SRecorded By: TG Hole Started: Time: _____ Date: 07/27/89 Hole Completed: Time: _____ Date: 07/27/89 Drilling Company: O'KeefeDrill Method: Cable Tool Drilling Fluids Used: None Pilot Hole Diameter: 6" Reamed Hole Diameter: N/ATotal Depth Drilled: 32.5' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 31.7 Diameter and Type of Casing: 2" Flush Threaded PVCWeight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 21.7-31.7' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
Static Water Level: <u>6.67'</u>	Date/Time Measured: <u>8/22/89</u>		<u>X</u> Other (specify) <u>.02" Factory</u>

Measuring Point Description/Elevation: Top of steel / N side / 5433.54' MP Height Above (+/-) or Below G.S.: + 1.63'

Well Annulus

Completion Description: Sand foot 32.5-31.7. Colorado Silica sand 31.7-20.4'. 1/4" Bentonite pellets 20.4-19.8. Bentonite pellets to the surface

From _____ To _____ DRILLING LOG Geological, Drilling, and Water Conditions and Sampling

0	14	Dark gray to gray clayey gravel. No water in hole so accurate bailer sample was not obtained. pH = 6.5. SC = 410.
14	18	Dark gray clayey sandy gravel. All clasts are angular to sub-angular with moderately low sphericity. Quartz clasts dominant in all size fractions with few lithics present. Micas infrequently present. pH = 6.8. SC = 880. T = 26
18	25	Brown to dark brown clayey sandy gravel. Larger clasts (coarse sand and gravels) are very angular with clasts up to 1" in diameter and are composed of lithics and quartz in equal proportions. Sand fraction ranges from very coarse to very fine with mica predominant. Sandy, moderately poorly sorted with clasts sub-rounded to sub-angular, medium sphericity and equal amounts of lithics and quartz. Fines = 30% of sample and contain abundant micas; lots of water; pH = 6.7. SC = 450. T = 26
25	32.5	Brown to dark brown clayey sandy gravel. Larger clasts are very angular to sub-angular, moderately low sphericity. Sand fraction is angular to sub-rounded with moderately low sphericity. Making lots of water still - sand heaving - pH = 6.8. SC = 360. T = 19.
	32.5	Lost water
		+ Bedrock pick = 25'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-25

Legal Location: T 3N R 8W Sec 23 Tract DAB Descriptive ~35' East of SBC, ~ 50' South of gate to SBC
Location: Gravel Plant, West of Butte STP

Recorded Hole Started: Hole Completed: Drilling
By: PD Time: 1600 Date: 07/06/89 Time: 1700 Date: 07/06/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: None Diameter: 9" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 12.5' Reamed: N/A Cased Below G.S.: 9.5' Type of Casing: 2" Flush Threaded PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 or Screened Below G.S.: 4.5-9.5' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static

Water Level: 4.62' Date/Time Measured: 8/24/89

Measuring Point MP Height Above (+/-)
Description/Elevation: Top of steel/N side/5427.76' or Below G.S.: + 1.80'

Well Annulus

Completion Description: 10-20 Colorado Silica sand 3.0-11.0'; 1/4" Bentonite pellets 2.0'-3.0'; Pure Gold
Grout and Bentonite pellets 1.0 to 2.0'

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
<u>0</u>	<u>0.5</u>	<u>Gravel; angular 1/2" minus crush gravel and fill material</u>
<u>0.5</u>	<u>10.0</u>	<u>Sand, fine to medium, sub-angular sand; moderately well sorted, silt matrix,</u> <u>water at 1.0, sand heaving into augers at ~ 7.0'.</u>

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-26

Legal Location: T 3N R 8W Sec 23 Tract BDC Descriptive Location: 300' South of Ranchland Packing; 60' NW of SBC

Recorded By: ME Hole Started: Time: 0730 Date: 07/07/89 Hole Completed: Time: _____ Date: 07/07/89 Drilling Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: N/A Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 15' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 14.5' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 9.5-14.5' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>9.92'</u>	Date: <u>8/22/89</u>		<u>X</u> Other (specify) <u>Factory 0.02</u>

Measuring Point Description/Elevation: Top of Steel / N side / 5425.67' MP Height Above (+/-) or Below G.S.: + 1.83'

Well Annulus Completion Description: 10-20 Colorado Silica sand 8.5-15'; 1/4" Bentonite pellets 7.0-8.5'; Pure Gold grout 2.0-7.0'; concrete with locked steel well head protector

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	6	Gravelly sandy fill; brown, grussy, micaceous; sub-rounded pebbles to sub-rounded cobbles.
6	7.5	Light brown to yellow sandy tailings; split spoon taken at 7'-7.5'. Water at 7'
7.5	15.0	Gravelly sand; dark brown, some organics, pea-sized gravel.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-27S

Legal Location: T 3N R 8W Sec 23 Tract BCB Descriptive Location: 75' North of SBC next to corrals

Recorded Hole Started: Hole Completed: Drilling
By: ME Time: 1010 Date: 07/07/89 Time: _____ Date: 07/07/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: N/A Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 12.5' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 12' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gauge of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 7.0-12.0' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>7.14'</u>		Date: <u>8/22/89</u>	<u>X</u> Other (specify) <u>Factory 0.02</u>

Measuring Point Description/Elevation: Top of Steel / N side / 5419.91' MP Height Above (+/-) or Below G.S.: + 2.29'

Well Annulus Completion Description: 10-20 Colorado Silica sand 6.0-12.5'; 1/4" Bentonite pellets 5.0-6.0'; Pure Gold

Grout 1.0-5.0': concrete with locked steel well head protector

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	6	Sandy, pebbly, cobbley fill; clasts are sub-rounded to sub-angular; brown to light brown.
6	12.5	Silty gravelly sand; minor clay; dark brown to dark gray. <200 ~ 30%. Water at 5.5'.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-27D

Legal Location: T 3N R 8W Sec 23 Tract BCB Descriptive Location: 75' North of SBC, next to corrals

Recorded By: TG Hole Started: Time: _____ Date: 08/04/89 Hole Completed: Time: _____ Date: 08/04/89 Driller: Loch Drilling Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: None Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 23.6' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 22.2' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 Interval Perforated or Screened Below G.S.: 12.2-22.2' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: 6.03' Date/Time Measured: 8/22/89

Measuring Point Description/Elevation: Top of Steel (North side) 5418.99' MP Height Above (+/-) or Below G.S.: + 1.20'

Well Annulus Completion Description: Colorado Silica sand 23.6-10.5'; Bentonite pellets 10.5-10'; Enviroplug grout to surface.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	10	Dark gray to black clayey sands, gravel. Gravel clasts are angular to sub-angular, low to medium low sphericity. Sand clasts are rounded to sub-rounded with moderate to high sphericity. Quartz clasts dominant in all size fractions with some lithics. Fines 30%-50%, micas are minor. pH = 6.9, SC = 1000, MV = 2, T = 14. Adding water.
10	15	Dark gray to black sandy gravelly clay. Fines - 70% of sample. Clasts as above. pH = 6.6, SC = 367, MV = 18, T = 14; 12-15' open hole making water.
15	18	Black to dark gray clayey sandy gravel. Sand clasts are sub-rounded to sub-angular with moderately low sphericity. Micas present, but not common. Larger clasts are angular to sub-angular, mostly quartz; pH = 6.2, T = 14, SC = 1-62, MV = 18
18	21	Black to dark gray clayey sandy gravel. All clasts show increasing lithic proportion. Micas increasing, micas common. pH = 6.6, SC = 1303
21	23.6	Dark gray to black clayey sandy gravel. Sand fraction is angular to sub-rounded. Micas common. SC = 678, pH = 6.7, MV = 14, T = 15.
		* Bedrock pick = 21'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-28

Legal Location: T 3N R 8W Sec 24 Tract DDA Descriptive Location: KOA Southwest corner: 50' North of Blacktail Creek

Recorded Hole Started: Hole Completed: Drilling
By: ME Time: 1325 Date: 07/07/89 Time: 1500 Date: 07/07/89 Driller: Butch Company: CNI

Drill Method: Auger Drilling Fluids Used: N/A Pilot Hole Diameter: 9" Reamed Hole Diameter: N/A

Total Depth Drilled: 12.5' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 11' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 6.0-11.0' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
			<u>X</u> Other (specify) <u>.02" Factory</u>

Static Water Level: 4.50' Date/Time Measured: 8/23/89

Measuring Point MP Height Above (+/-)
Description/Elevation: Top of Steel (North side) 5446.34' or Below G.S.: + 2.07'

Well Annulus Completion Description: 10-20 Colorado Silica sand 5.0-12'; 1/4" Bentonite pellets 4.0-5.0'; Pure Gold grout
1-4.0'; Concrete with locked steel well head protector.

Remarks: Bentonite pellets bridged between auger and PVC; well completed open hole, except sand pack.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	4.5	Silty, pebbly, sandy fill; organics at top. Brick and wood fragments intermixed. Water at 4'.
4.5	12.5	Silty, clayey, sand; black, <200 - 30%-40%.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GS-GW-29S

Legal

Descriptive

Location: T 3N R 8W Sec 24 Tract DBB Location: 70' N of MSD; 100' E of RR bridge over MSDRecorded Hole Started: Hole Completed: Drilling
By: ME Time: 1530 Date: 07/07/89 Time: _____ Date: 07/08/89 Driller: Butch Company: CNIDrill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 9" Diameter: N/ATotal Depth Total Depth Total Depth Diameter and
Drilled: 13.5' Reamed: N/A Cased Below G.S.: 13' Type of Casing: 2" Flush Threaded PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch. 40 or Screened Below G.S.: 8.0-13.0' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			<u>X</u> Other (specify) <u>Factory .02</u>

Static

Water Level: 4.80' Date/Time Measured: 8/23/89

Measuring Point

Description/Elevation: Top of steel (N side) 5443.26' MP Height Above (+/-) or Below G.S.: + 2.29'

Well Annulus

Completion Description: 10-20 Colorado Silica Sand 6.5-13.5'; 1/4" Bentonite pellets 5.5-6.5'; PureGold grout 0-5.5'; concrete with locked steel well head protector.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1.75	Sandy, minor pebbles tailings; Yellow orange to light brown.
1.75	7	Minor clay, silty sand; Dark gray. Water at 6'.
7	13.5	Minor clayey, silty, sandy, cobbly fill; Dark gray fines: <200 ~ 30%

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: A1-GW-GS-29D

Legal Location: T 3N R 8W Sec 24 Tract DDB Descriptive 70' North of MSD,
Location: 100' East of railroad bridge over MSD

Recorded By: TG Hole Started: Time: _____ Date: 07/25/89 Hole Completed: Time: _____ Date: 07/26/89 Drilling Driller: Loch Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: N/A Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 40' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 39.6' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch.40 Interval Perforated or Screened Below G.S.: 29.6-39.6' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: None

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	_____	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	_____	_____ Slotted with a torch
E-Logs?	_____	_____	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			_____ Other (specify) <u>0.02" Factory</u>

Static Water Level: 4.85' Date/Time Measured: 8/23/89 X MP Height Above (+/-) or Below G.S.: + 1.94'

Measuring Point Description/Elevation: Top of steel, N side / 5448.22' Well Annulus Completion Description: Sand foot 40-39.6', Colorado Silica sand 39.6-27.7'; Bentonite pellets 27.7-26.7';

Enviroplog to surface, From _____ To _____ DRILLING LOG Geological, Drilling, and Water Conditions and Sampling

0	15	Dark gray to black sandy gravelly clay. Fines ~60% of sample. Sand fraction is rounded to sub-rounded, moderately poorly sorted, moderate sphericity. Larger clasts are angular to sub-angular, low sphericity. Fines contain few micas of Fe clasts. Lithic fragments predominate in large fraction, quartz in smaller. T = 28°, pH = 5, SC = 940
15	19	Alternating dark gray to black sandy clay/clayey sands, locally color is brown. Fines (<200) ~80% of sample, locally T = 30, SC = 780, pH = 6.3, MV = 35; making water at 19'.
19	25	Brown to light brown, well sorted sandy clay. Fines ~15%-25% of sample. Clasts coarse grained, sub-rounded to sub-angular with high sphericity. Fines contain 3%-5% Fe clasts. Sand heaving.
25	35	Brown to dark brown moderately poorly sorted clayey sand and gravels. Sand fraction ranges from very fine to very coarse. Medium sand is sub-angular to rounded, moderate sphericity. Sand fraction is ~30% lithics, mostly quartz. Larger clasts are angular to sub-angular, moderately low sphericity. 50% quartz. 50% lithics, pH = 6.7, SC = 1040, T = 30, MV = 2.
35	39	Brown to tan clayey sandy gravel. Sample is poorly to moderately poorly sorted. Sand/silt clasts are rounded to sub-angular, moderately high sphericity, composed primarily of quartz. Larger clasts are angular to sub-angular with low sphericity. Larger clasts predominately quartz with few lithic fragments. little or no micas present. pH = 7.4, SC = 728, T = 13°C.
39	40	Brown to tan clayey sandy gravel. Coarse fragments up to 1/2" in diameter present. Large clasts are angular to sub-angular with low sphericity. Sand fraction is coarse grained with rounded to sub-rounded, moderately low sphericity. Fines contain lots of micas. pH = 7.2, SC = 966.
		* Bedrock pick = 35'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-30S

Legal Location: T 3N R 7W Sec 19 Tract BCD Descriptive Location: 100' off George Street near MSD off Kaw Avenue

Recorded By: TG Hole Started: Time: _____ Date: 07/18/89 Hole Completed: Time: _____ Date: 07/18/89 Drilling Driller: Loch Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: N/A Pilot Hole Diameter: 6" Reamed Hole Diameter: None

Total Depth Drilled: 19.9' Total Depth Reamed: None Total Depth Cased Below G.S.: 19.7' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 PVC Interval Perforated or Screened Below G.S.: 13.7-19.7' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: None

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)

Static Water Level: 9.42' Date/Time Measured: 8/18/89 X Other (specify) .02" Factory

Measuring Point Description/Elevation: Top of steel (N side)/ 5456.52' MP Height Above (+/-) or Below G.S.: + 1.32'

Well Annulus Completion Description: Sand foot 19.9-18.7' (TD = 18.7). Colorado Silica sand 18.7-12.5'; Bentonite pellets 12.5-11.5'; grout to surface

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	17	Black to dark gray coarse to very coarse sandy gravelly clay. Fines ~50%. Clasts are rounded to sub-angular with moderate sphericity. Larger clasts (up to 1/2" in diameter) are angular to sub-angular with low sphericity.
17	19.9	Black to dark gray to brown sandy gravelly silty clay. Clay fraction ~25%-30%. Grains are slightly coarser than above. More silt, less clay.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-300

Legal Location: T 3N R 7W Sec 19 Tract BCD Descriptive Location: 100' North of George, East of Kaw Ave. toward MSD

Recorded By: TG Hole Started: Time: _____ Date: 07/12/89 Hole Completed: Time: _____ Date: 07/12/89 Drilling Driller: Loch Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: N/A Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 39.8' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 38.5' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gage of Casing: Sch. 40 PVC Interval Perforated or Screened Below G.S.: 28.5-38.5' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw

Static Water Level: 9.35' Date/Time Measured: 8/18/89 _____ X _____ Other (specify) .02" Factory

Measuring Point Description/Elevation: Top of steel/N side, 5456.25' MP Height Above (+/-) or Below G.S.: + 1.50'

Well Annulus Completion Description: Sand foot 37.8-38.5', Colorado Silica sand 38.5-28.5'; Bentonite pellets to 25'; Volclay grout to surface.

Remarks:		
From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	16	Black clay, glass, wood, fill material, some minor quartz.
16	20	Black sandy gravel. Sand clasts are moderately poorly sorted, sub-angular to sub-angular, moderate to low sphericity. 5%-10% of sample black clay (organics?). Bailed 5 gpm, pH = 6.7, SC = 1700.
20	23	Black to dark gray silty clay, tight. Bailed <2 gpm, water black but settled quickly. pH = 7.7, SC = 1700.
23	25	Black clayey sandy gravel. Fines <30%, clasts of quartz and lithics. Clasts are sub-angular to angular, moderately poorly sorted.
25	35	Black to dark brown gravelly clay. Fines ~50%. Sands are coarse to very coarse. Larger clasts more angular to sub-angular, smaller clasts are rounded to sub-rounded. Fines are micaceous with 5% Fe clasts.
		26' Bailed 18 gpm, pH = 6.8, T = 22°, SC = 3458
		28.5' T=22°, SC = 1925, pH = 6.9
		31 T = 25°, pH = 6.5, SC = 1903, Bailed 24 gpm
35	39.9	Brown to dark brown sandy silty clay with occasional gravel clasts (<20%). Lots of Fe clasts, micas common.
		+ Bedrock Pick = 35'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-GW-GS-31S

Legal Location: T 3N R 7W Sec 19 Tract CBA Descriptive Location: Base of landfill, South of George, East of Kaw Ave.

Recorded Hole Started: Hole Completed: Drilling
By: TG Time: _____ Date: 07/19/89 Time: _____ Date: 07/19/89 Driller: Loch Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: None Pilot Hole Diameter: 6" Reamed Hole Diameter: N/A

Total Depth Drilled: 20' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 19.6' Diameter and Type of Casing: 2" Flush Threaded PVC

Weight or Gauge of Casing: Sch.40 PVC Interval Perforated or Screened Below G.S.: 14.6-19.6' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: None

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	_____	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	_____	_____ Slotted with a torch
E-Logs?	_____	_____	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			_____ Other (specify) <u>.02" Factory</u>

Static Water Level: 5.09' Date/Time Measured: 8/22/89 X MP Height Above (+/-) or Below G.S.: + 1.09'

Measuring Point Description/Elevation: Top of steel (N side)/ 5451.64'

Well Annulus Completion Description: Drilled to 20', sand to 19.6', heaved to 17.3'; Colorado Silica sand to 11.6', Bentonite pellets 11.6-11.1'; Pure Gold grout to surface.

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	7	Black to brown sandy silty clay. Sand clasts coarse to medium size, sub-angular to sub-rounded ~5% lithic fragments, sand is moderately well sorted, sample is poorly sorted, fines ~65%.
7	10	As above, sand is now poorly sorted with occasional clasts up to 1" along long axis. Clasts (larger) are angular to sub-angular.
10	15	Black to brown sandy gravelly clay. Sand size fragments ~35% of sample. Larger clasts are angular to sub-angular. Still significant portion of lithic fragments.
15	20	Brown to dark brown silty clay sand. Fines 40%-50% of sample. Sand fraction is well rounded to sub-angular, moderate to high sphericity, moderately well sorted. Lithic fragments and quartz predominate in sand fraction, few micas present. Making water. pH = 6.7, SC = 445, T = 24 C.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GW-GS-31DLegal Location: T 3N R 7W Sec 19 Tract CBA Descriptive Location: At base of landfillRecorded Hole Started: Hole Completed: Drilling
By: TG Time: _____ Date: 07/18/89 Time: _____ Date: 07/18/89 Driller: Loch Company: O'KeefeDrill Drilling Pilot Hole Reamed Hole
Method: Cable Tool Fluids Used: N/A Diameter: 6" Diameter: N/ATotal Depth Total Depth Total Depth Diameter and
Drilled: 40.4' Reamed: N/A Cased Below G.S.: 38.6' Type of Casing: 2" Flush Threaded PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 PVC or Screened Below G.S.: 28.6-38.6' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
Static			_____ Other (specify) <u>.02" Factory</u>
Water Level: <u>4.99'</u>	Date/Time Measured: <u>8/23/89</u>	<u>X</u>	MP Height Above (+/-)
Measuring Point	Description/Elevation: <u>Top of steel (N side)/ 5451.80'</u>		or Below G.S.: <u>+ 1.21'</u>

Well Annulus
Completion Description: Sand foot 40.4-38.6', Colorado Silica sand from 39.6-25.4'; Bentonite pellets from 25.4-24.0'; Volclay grout to surface.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
5	7	Black to brown sandy silty clay. Sand clasts coarse to medium size, sub-angular to sub-rounded -5% lithic fragments. Sand is moderately well sorted, sample is poorly sorted, fines -65%.
7	10	As above, sand is now poorly sorted with occasional clasts up to 1" along long axis. Clasts are also angular to sub-angular.
10	15	Black to brown sandy gravelly clay. Sand size fragments -35% of sample. Larger clasts are angular to sub-angular. Sand clasts are sub-rounded to sub-angular. Still significant portion of lithic fragments.
15	20	Brown to dark brown silty clay sand. Fines 40%-50% of sample. Sand fraction is well rounded to sub-angular, moderate to high sphericity, moderately well sorted. Lithic fragments and quartz predominate in sand fraction, few micas present. Making water. pH = 6.7, SC = 445, T = 24°C.
20	25	Brown to dark brown silty clayey sand/gravel. Fines 30%-50%. Sand fraction is well rounded to sub-angular. Lithic fragments and quartz moderately well sorted. Few micas. -1% of sand is Fe. Larger clasts (up to 1/2" in diameter) are more angular than smaller size portion. Few micas. pH = 6.7, SC = 480, T = 25°C.
25	30	Brown to dark brown to black (locally), silty clay sand/gravel. Sand is coarse to fine, moderately poorly sorted, sub-angular to sub-rounded with moderate sphericity. High (~5%) Fe in fines. pH = 7.1, SC = 450, T = 25°C.
30	40	Brown to black to dark brown clayey sand and gravel; same as above except lithic fragments appear to be increasing. pH = 7.1, SC = 700, T = 30
		Bedrock pick = 30'

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GW-GS-32

Legal

Descriptive

Location: T 3N R 7W Sec 19 Tract BCD Location: NW from AI-GW-GS30D & S. N of Metro Storm SewerRecorded Hole Started: Hole Completed: Drilling
By: TG Time: _____ Date: 07/20/89 Time: _____ Date: 07/21/89 Driller: Loch Company: O'KeefeDrill Drilling Pilot Hole Reamed Hole
Method: Cable Tool Fluids Used: N/A Diameter: 6" Diameter: N/ATotal Depth Total Depth Total Depth Diameter and
Drilled: 39.4' Reamed: N/A Cased Below G.S.: 37' Type of Casing: 2" Flush Threaded PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 or Screened Below G.S.: 27-37' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>3.75'</u>	Date/Time Measured: <u>8/23/89</u>	<u>X</u>	Dther (specify) <u>.02" Factory</u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u>Top of steel (N side)/ 5450.8'</u>			or Below G.S.: <u>+ 2.13'</u>

Well Annulus

Completion Description: Sand foot 39.4-37' (TD = 37'). Colorado Silica sand from 37-26.2'. Bentonite pellets to 24.9'; 3/8" hole plug to surface.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	10.5	Surface silty clayey tailings and fill, very sparse vegetation Black to dark gray sandy silty clay (tailings?). Fines -60% of sample. Sand fraction is poorly sorted with clasts from very fine to very coarse size. Clasts are angular to sub-angular with moderate sphericity, occasionally very round. Some clasts (very rare) up to 1/4" in diameter.
10.5	17.5	Black to dark gray gravelly clay. Fines -50%. Gravel and coarse sand clasts are angular to sub-angular, poorly sorted with moderately low sphericity. pH = 6.3 SC = 660.
17.5	23	Light gray to brown clay gravel. Fines -20% of sample. Clasts are angular (more common in larger clasts) to rounded to sub-rounded (smaller clasts). Large clasts up to 1/2" in diameter. Sorting moderate to good, moderately low sphericity to moderately high. Water at 18'. pH = 6.3. SC = 110.
23	24	Brown to light brown (tan) clay sand. Finer sand fraction than above. Clasts at 1/2" diameter much rarer than above, but occasionally present. Moderately well bimodal sorting on silt and sand fraction. pH = 6.3. SC = 1300.
24	27	Light brown to tan clay gravel. Fines -15% of sample. Sand fraction is fine to coarse with clasts moderately well sorted, rounded to sub-rounded. Larger clasts are angular to sub-angular with low sphericity. Smaller clasts moderate to high sphericity. Fines contain -1% Fe. Predominant clasts are quartz with some (~25%) lithics. pH = 6.5. SC = 1220.
27	39.4	As 24-27.
		* Bedrock pick = 24'

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-44S

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract ADB Location: NW corner of Clark Park: 10' S of Wall Street

Recorded Hole Started: Hole Completed: Drilling
By: M.Egan Time: 1305 Date: 07/18/89 Time: 1804 Date: 07/18/89 Driller: Dan Q Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Air Rotary Fluids Used: N/A Diameter: 6" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 30' Reamed: N/A Cased Below G.S.: 24.7' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 or Screened Below G.S.: 19.7-24.7' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
Static			<u> </u> Other (specify) <u>Factory 0.02</u>
Water Level: <u>19.03</u>	Date/Time Measured: <u>8/17/89</u>		<u>X</u> MP Height Above (+/-)
Measuring Point			or Below G.S.: <u>+ 0.00</u>
Description/Elevation: <u>Top of PVC / 5476.24'</u>			

Well Annulus
Completion Description: 10-20 Colorado Silica sand at 18.0-26.0'; 1/4" Bentonite pellets 17-18'; Pure gold
grout 1-17'. Flush mounted steel wellhead protector, locked and cemented.

Remarks: Drilled 3' open hole, cased. Casing at upper fringe of water table.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
<u>0</u>	<u>2</u>	<u>Topsoil: Sandy, dark brown, organics.</u>
<u>2</u>	<u>9</u>	<u>Sand: Gravelly: Minor silt, brown, moist.</u>
<u>9</u>	<u>15</u>	<u>Interbedded sands, silts, minor clays: Gravelly in spots, dark brown.</u>
<u>15</u>	<u>19</u>	<u>Sandy gravel: Orangish brown, sub-angular clasts, moist.</u>
<u>19</u>	<u>20</u>	<u>Clay: Sandy, silty, brown, wet.</u>
<u>20</u>	<u>30</u>	<u>Sand: Well sorted, coarse, water - no flow, orange. Silt content increases with depth. At 28' <200 ~50%.</u>
		<u>ID = 30'</u>

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-44D
(Abandoned)

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract ADB Location: NW corner of Clark Park; 10' S of Wall Street

Recorded Hole Started: Hole Completed: Drilling
By: M.Egan Time: 1645 Date: 07/17/89 Time: _____ Date: _____ Driller: Dan O Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Air Rotary Fluids Used: N/A Diameter: 6" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 61' Reamed: N/A Cased Below G.S.: 57.3' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 or Screened Below G.S.: 47.3-57.3' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	<u>X</u> No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>N/A</u>	Date/Time Measured: _____		_____ Other (specify) _____
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u>N/A</u>			or Below G.S.: <u>N/A</u>

Well Annulus
Completion Description: _____

Remarks: 30' of steel casing left in hole from 56-26' BGS; Perforated at 56-51'.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Topsoil: Dark brown, organics.
2	8	Gravel: Sandy, light brown, sub-rounded to sub-angular clast. C sample taken.
8	9	Clay: Sandy, dark brown.
9	17	Sand: Pebbly, minor silt, moist. <200 -20%.
17	18	Clay: Dark brown, sandy, moist.
18	26	Gravel: Sandy, orange to light brown, sub-rounded clasts: Grains are wet. C sample taken.
26	33	Clay: Sandy, pebbly, brown, moist. C sample taken.
33	55	Sand: Well sorted; Interfingering with silty clay zones, wet, dark brown. Water sample taken after recovery. SC = 353 at 34', pH = 5.41 at 34'. Flowing H ₂ O at 50'. SC = 738 at 50', pH = 6.03 at 50'.
55	61	Gravel: Sandy, brown, sub-angular clasts. Flowing H ₂ O = 10 gpm. SC = 1306 at 60'. pH = 5.94 at 60'.
		TD = 61' Abandoned: Well annulus and PVC filled to 0.5 BGS with Bentonite pellets.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-44D
(Redrill)

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract ADB Location: NW corner of Clark Park; 10' E of 44S

Recorded Hole Started: Hole Completed: Drilling
By: M.Egan Time: 0715 Date: 07/19/89 Time: 1510 Date: 7/19/89 Driller: Dan O Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Air Rotary Fluids Used: N/A Diameter: 6" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 64' Reamed: N/A Cased Below G.S.: 60.4' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 or Screened Below G.S.: 50.4-60.4' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
Static			<u>X</u> Other (specify) <u>Factory 0.02</u>
Water Level: <u>19.67</u>	Date/Time Measured: <u>8/17/89</u>		MP Height Above (+/-)
Measuring Point			or Below G.S.: <u>0.00</u>
Description/Elevation: <u>Top of PVC / 5476.24'</u>			

Well Annulus

Completion Description: 10-20 Colorado Silica sand at 48-61.0'; 1/4" Bentonite pellets at 47-48'; Pure gold
grout at 2-47'; 1/4" Bentonite pellets at 1-2'; Ground flash steel wellhead protector locked and cemented.

Remarks: Redrill of previous deep well; 20' East of original site.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Topsoil: Dark brown, sandy, organics.
2	8	Gravel: Sandy, light brown, sub-angular clasts.
8	9	Clay: Sandy, dark brown, moist.
9	18	Gravel alternating with sand zones; Minor silt <200 ~15%, moist.
18.0	18.5	Clay: Dark brown, sandy, moist.
18.5	29	Gravel: Sandy, silty, wet (no flow), dark brown, sub-rounded to sub-angular clasts.
29	33	Clay: Sandy, silty, moist.
33	53	Sand: Silty, clayey, moist, dark brown, <200 ~60%.
53	64	Gravel: Silty, clayey at top, sandy through out, water/ +10 gpm.
		TD = 64'

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GW-GS-45

Legal

Descriptive

Location: T 3N R 7W Sec 18 Tract DCC Location: 150' S of home plate: East ball diamond by City CorralRecorded Hole Started: Hole Completed: Drilling
By: PD Time: 1320 Date: 07/20/89 Time: _____ Date: 7/21/89 Driller: Dan O Company: O'KeefeDrill Drilling Pilot Hole Reamed Hole
Method: Air Rotary Fluids Used: Air Diameter: 7" Diameter: N/ATotal Depth Total Depth Total Depth Diameter and
Drilled: 59.5' Reamed: N/A Cased Below G.S.: 59.0' Type of Casing: 2" Flush Thread PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch. 40 or Screened Below G.S.: 49-59.0' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>31.77'</u>	Date/Time Measured: <u>8/15/89</u>	<u>X</u>	Other (specify) <u>.02" Factory</u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u>Top of steel (N side) 5490.86'</u>			or Below G.S.: <u>+1.65</u>

Well Annulus

Completion Description: 10-20 Colorado Silica sand 47.5-59.5'; 1/4" Bentonite pellets 46-47.5'; Pure gold
grout 2-46'.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	0.5	Silty sand/fill; Granitic silty sand with debris.
0.5	1.5	Sand; Light tan to yellow; Possible tailings, but not likely. Moderately sorted, lots of fines.
1.5	5.0	Slag; Broken black slag.
5.0	31.0	Moist, sandy silt; Some clay; Very fine sand with lots of silt, light tan, dry at 12', increasing silt/clay with depth.
31.0	55.0	Silty clay; Tight, moist. Sandy silt clay, reddish brown. Water at ~35', ~1 gpm (tight).
55.0	59.5	Clay; Sticky, very tight. Cuttings are slightly moist. Reddish brown, very little sand-sized fragments. Blew water at 62', when reaming clay out of casing; leave hole sit overnight to check water level. Water appears to be at ~35' BGS.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
 Legal Descriptive or Number: AI-GW-GS-46D
 Location: T 3N R 7W Sec 19 Tract AA0 Location: 2035 Grand Avenue, Farmer's Insurance

Recorded Hole Started: Hole Completed: Drilling
 By: MG Time: 1400 Date: 08/02/89 Time: 1900 Date: 08/02/89 Driller: Dan O Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
 Method: Air Rotary Fluids Used: None Diameter: 6" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
 Drilled: 62' Reamed: N/A Cased Below G.S.: 61' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
 Gage of Casing: Sch.40 or Screened Below G.S.: 51-61' Aquifer: Tertiary Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u>24.85</u>	Date/Time Measured: <u>8/17/89</u>	<u>X</u>	Other (specify) <u>0.020 Factory Slot</u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u>Top of PVC / 5484.03'</u>			or Below G.S.: <u>0.00</u>

Well Annulus
 Completion Description: 10-20 Colorado Silica sand at 50-62'; 1/4" Bentonite pellets at 48-50'; Volplug
Bentonite at 3-48'; Concrete surface seal.

Remarks: Few Volplug pellets entered well casing during pull-back. Able to clean casing.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Topsoil: Silt, loam, dark brown to black, organic rich.
2	12	Sand and gravel: Sand (85%); gravel (15%), brown, gravel to medium-sized, sand is also medium, slightly moist, interbedded, sub-rounded, slightly silty, Micaceous at 8-12 ft.
12	17	Clay: Brown: Silty: Slightly moist, balls up easily, occasional sand lenses.
17	25	Sand: Medium brown, fairly clean, slightly moist, moderately well sorted.
25	29	Clay: Brown, silty, slightly moist.
29	32	Sand and gravel: Poorly sorted, small to large, saturated, sub-rounded, micaceous.
32	36	Clay: Silty, brown, gravel interbeds, ribbons easily.
36	46	Sand and gravel: 80% sand; Poorly sorted; Sub-rounded, light brown, slightly oxidized, cleaner at 40-42'; Saturated.
46	51	Silt: Brown to dark brown, sandy; Moist, little water.
51	54	Sand and gravel: Brown, silty, saturated; Cleaner at 53'; Makes ~5gpm.
54	55	Silt: Dark brown; Sandy.
55	62	Sand and gravel: Brown, silty; Small to medium, sub-rounded.
		TD at 61' at 1700; Makes ~20 gpm at 58-61'. SC = 450, pH = 6.2, Temp = 16.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-46S

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract AAD Location: 2035 Grand Avenue, Farmer's Insurance

Recorded Hole Started: Hole Completed: Drilling
By: MG Time: _____ Date: 08/02/89 Time: _____ Date: 08/02/89 Driller: Dan O Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Air Rotary Fluids Used: None Diameter: 6" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 30' Reamed: N/A Cased Below G.S.: 29.5' Type of Casing: 2" PVC Flush Threaded

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch.40 PVC or Screened Below G.S.: 24.5-29.5 Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
Static			_____ Mechanical slots _____ (size)
Water Level: <u>25.25'</u> Date/Time Measured: <u>8/17/89</u>			<u>X</u> Other (specify) <u>Factory .02</u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u>Top of casing (N side)/ 5483.76</u>			or Below G.S.: <u>+ .15</u>

Well Annulus
Completion Description: Colorado Silica sand 30-22'; Enviroplug grout 3-22'; locking well protector secured with grout 0-3;.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Topsoil, dark brown silt loam, slightly moist.
2	7	Sand and gravel: Sand (80%); light brown, slightly oxidized, silty matrix.
7	13	Sand, light brown, silty, slightly moist, moderately well sorted, occasional gravel, sub-rounded, occasional clayey lenses.
13	18	Clay: Medium to dark brown, ribbons easily, silty, slightly micaceous.
18	25	Sand: Medium brown, moderately well sorted; Fairly clean; Sub-rounded; Fine to medium sized; Slightly moist.
25	28	Clay.
28	33	Sand and gravel: Medium brown, poorly sorted, sub-rounded gravel to 3/4", saturated - first good water-bearing zone. Blew >5 gpm.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-GW-GS-50

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract ABD Location: 100' North of Griffith residence, next to MSD

Recorded Hole Started: Hole Completed: Drilling
By: ME Time: _____ Date: 07/24/89 Time: _____ Date: 08/02/89 Driller: Dan O Keefe Company: O'Keefe

Drill Drilling Pilot Hole 12 1/4" to 50' Reamed Hole
Method: Air Rotary Fluids Used: Quick Gel Mud Diameter: 10" to 150' Diameter: 7 7/8

Total Depth Total Depth Total Depth 7 7/8" to Diameter and
Drilled: 272 Reamed: N/A Cased Below G.S.: ID 268' Type of Casing: 4" Flush Threaded PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch. 40 or Screened Below G.S.: 248-268 Aquifer: Alluvium Depth Below G.S.: None

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	<u>X</u>	_____	_____ Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	_____	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
Static			_____ Other (specify) <u>0.20 Factory</u>
Water Level: <u>24.29</u> Date/Time Measured: <u>8/21/89</u>			<u>X</u> MP Height Above (+/-)
Measuring Point			or Below G.S.: <u>+ 0.00</u>
Description/Elevation: <u>Top of steel / 5475.70</u>			

Well Annulus
Completion Description: 10" diameter steel casing 0-180'; 8" diameter steel casing 0-97'; 10-20 Colorado
Silica sand 272-240'; Pure gold Bentonite grout 240-0'; Flush well protector with lock at surface.
Remarks: Core samples taken at 160', 200', 240' and 270' with 10' x 2" core barrel.

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	21	Fill: sandy gravelly cobbles, iron oxide stained grains, sub-rounded to sub-angular clasts of granitic origin. Black silty sandy clay zones throughout.
21	105	Sand gravel, iron stained sand grains, gravel contains quartz biotite, K spar. Some probably clay and silt zones interbedded. Smaller clasts are sub-rounded, larger clasts are fractured (angular) from the drill bit. Large cobble encountered at 65'. Clayey silts are orangish brown with mica flakes and sand grains contained, varying to greenish brown.
105	110	Sandy clay; brown, sub-rounded sand grains.
110	117	Sandy gravel: vobbles present, clasts of granitic origin, angular to sub-rounded.
117	150	Sandy, clay; minor gravel, brown, rounded sand grains, clay is micaceous (biotite). Occasional green grains (copper oxide?).
		Logging of cuttings was difficult due to drill method from 0-150'. Hole is making about 30-40 gpm at 160' while driving core barrel.
		Mud pit pH = 6.0, T = 22, SC = 2210
180		pH = 6.47, T = 17, SC = 1545
150	170	Split spoon: 8.5' of recovery in 2" core barrel. Top 3' is washed drill cuttings; lower 5.5' is alternating beds of very fine silt and clay with beds of coarse, moderately rounded sand, one thin (~4") bed of clean 3/4" gravel; beds range in thickness from 2" to 8", lots of pyrite mica Hornblende, clayey zones have disseminated Hornblende, making ~30 gpm at 160'.

TEST HOLE LOG (continued)

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-GW-GS-50

Legal

Descriptive

Location: T 3N R 7W Sec 19 Tract ABD Location: 100' North of Griffith residence, next to MSD

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
185	190	Tighter at 185' - more clay, dark brown water, mostly clay with occasional sand and gravel lenses.
190	200	Sand, fine to medium, clean, not a lot of water. A few thin clay zones, very clean sand at 195'.
200		Split spoon sample - sand heaved into hole; only recovered 3' of heaved sand.
200	210	No recovery.
210	230	Gravel; making lots of water 210-220' (50-100 gpm). pH = 6.6, SC = 1850, T = 15° - Sample at 220'.
230	235	Extremely permeable coarse clean gravel and sand. Making ~ 100 gpm.
240	265	Split spoon - alternating beds of tight clay and small seams of gravel. One large clast of Monzonite at ~246'. Heavily oxidized. Water sample at 240' - pH = 6.7. SC = 1620, T = 15°.
265	268	Dark, dirty water; lots of clay. Seams tighter than above. Lots of tight clay at 265'. Water sample at 265', pH = 6.8, SC = 744 to 15°. Occasional gravel zones. Mostly tight clay.
268	272	Bedrock, white and black pyritic granite, hard; casing bounces. Not much water; pyrite abounds un-oxidized. pH = 7.34, SC = 780.
		Core sample at 270'. Only able to drive shoe about 6". Very hard. No water blowing from casing.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-PW-01

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract ABD Location: 10' North of GS-07: SBC County Shop Complex

Recorded Hole Started: Hole Completed: Drilling
By: PD Time: 0230 Date: 07/13/89 Time: 1400 Date: 08/28/89 Driller: Lee Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Cable Tool Fluids Used: Water Diameter: 7" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and
Drilled: 45' Reamed: N/A Cased Below G.S.: 45' Type of Casing: 5" Stainless Steel

Weight or Interval Perforated Target Packer Type and
Gage of Casing: .250" or Screened Below G.S.: 17-42' Aquifer: Alluvium Depth Below G.S.: K Packer 17'

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u>X</u>	<u> </u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u> </u>	Date/Time Measured: <u> </u>		<u>X</u> Other (specify) <u>Mechanical Slots .02</u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u> </u>			or Below G.S.: <u> </u>

Well Annulus
Completion Description: Pulled steel casing so that shoe was 19' below ground surface.

Remarks: 7" steel, 0-19', 17' K packer, 17-42', .020 slot stainless steel, 42-45', .000 slot stainless

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	20.5	Fill: broken granite; slag, sand and miscellaneous debris; mostly granitic wasterock fill.
20.5	26	Tailing/silt: silt tailings, dark brown to gray, no light yellow sand tailings, mostly dark gray to brown silt tails; lots of pyrite and mica, a few oxidized zones.
26	40.0	Interbedded sand and silt; very coarse granitic sand and gravel interbedded with very tight silt/clay; silt clay beds .5 to 1.5' thick. Sand appears saturated; Silt/clay is very tight! Split spoon at 30.0': split spoon at 35.0': split spoon at 40.0'.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-PW-02

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract BCD Location: 5' South of AI-GW-GS-32

Recorded Hole Started: Hole Completed: Drilling
By: IG Time: 10:00 Date: 07/21/89 Time: 11:00 Date: 08/28/89 Driller: Lock Company: O'Keefe

Drill Drilling Pilot Hole Reamed Hole
Method: Cable Tool Fluids Used: N/A Diameter: 7" Diameter: N/A

Total Depth Total Depth Total Depth Diameter and 5 5/8" Stainless Steel
Drilled: 27' Reamed: N/A Cased Below G.S.: 25' Type of Casing: .050 Slot Stainless Steel

Weight or Interval Perforated Target Packer Type and
Gage of Casing: .250" or Screened Below G.S.: 0-22' Aquifer: Alluvium Depth Below G.S.: None

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	<u> </u>	<u> </u> No casing in hole
Well Test Pumped?	<u>X</u>	<u> </u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	<u> </u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u> </u> Field saw cut Hacksaw
			<u> </u> Mechanical slots <u> </u> (size)
Static			<u> </u> Other (specify) <u>0.050 Stainless Steel</u>

Water Level: Date/Time Measured: X MP Height Above (+/-)
Measuring Point Description/Elevation: or Below G.S.:

Well Annulus
Completion Description: 25-22' .000 Slot Stainless Steel; 22-0' .050" Stainless Steel; Native caved material

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	10.5	Black to dark gray sandy silty clay. Fines ~60% of sample. Sand fraction is poorly sorted with sizes from very fine to very coarse. Clasts are angular to subangular, occasionally rounded, with some clasts up to 1/4" in diameter.
10.5	15	Black to dark gray gravelly clay. Fines ~50%. Gravel/sand clasts are angular to subangular (larger clasts more angular). Medium low sphericity, poorly sorted.
15	20	Brown to tan clayey sandy gravel. Clasts up to 1/2" long axis present. Color change at ~17.5'. Large clasts are angular to subangular, smaller clasts are rounded to subrounded. Fines ~20% of sample. Sorting is good to moderate with high sphericity.
20	25	Brown to tan clay sand. Lighter than above.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-PW-03

Legal Location: T 3N R 8W Sec 24 Tract C8B Descriptive Location: North Cell, Butte Reduction Works Tailings Impoundment

Recorded Hole Started: _____ Hole Completed: _____ Drilling By: TG/PD Time: _____ Date: 08/24/89 Time: 1000 Date: 08/24/89 Driller: Lock Company: O'Keefe

Drill Method: Cable Tool Drilling Fluids Used: None Pilot Hole Diameter: 6 7/8" Reamed Hole Diameter: N/A

Total Depth Drilled: 42.0' Total Depth Reamed: N/A Total Depth Cased Below G.S.: 42.0' Diameter and Type of Casing: 5 5/8" 0.0 Stainless Steel

Weight or Gage of Casing: .250" Interval Perforated or Screened Below G.S.: 9-39' Target Aquifer: Alluvium Packer Type and Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	<u>X</u>	_____	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	_____	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
			_____ Other (specify) <u>.005"</u>

Static Water Level: _____ Date/Time Measured: _____ MP Height Above (+/-) or Below G.S.: _____
 Measuring Point Description/Elevation: Top of steel well protector

Well Annulus Completion Description: .000 Slot 42-39'; .05" Slot 39-9'; .000 Slot 9-0'; Natural pack

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	15	Brown to dark brown to black slag/MN tails fragments.
15	17.5	Black to brown coarse to very coarse sand to gravels of quartz, some fields lithic fragments. Clasts are rounded to subangular, moderate to high sphericity, well sorted, few fines.
17.5	20	Black to dark brown, coarse to very coarse sands with interbedded organics. Fines increase locally.
20	25	Black to brown, medium to fine grained sandy silt, fines <200 mesh ~20%. Clasts are angular to subangular with moderate sphericity, poorly to moderately sorted.
25	27	Brown gravels to very, very coarse sands, clasts up to 1" in diameter. Clasts are angular to rounded (mostly subangular), low sphericity. Clasts are quartz with fines containing ~5% black (MN?) fragments. Fines contain high proportion of micas.
27	30	Brown gravelly clay with fines (<200) ~50%, T = 24, pH = 6.8, SC = 378.
30	35	Heaving sands. Split spoon shows upper (33-34) as brown, coarse to very coarse and with few fines. Grains are rounded to subangular with moderate sphericity. Well sorted (<200 <05%). Bottom of core (34-35) tight clay, poorly sorted silt to fine sand, gray color. Clasts are angular to
35	37.5	Brown sandy silty clay, medium-fine grained sands, micaceous sands occurring 39'.
37.5	40	Salt and pepper silty sandy micaceous clay, fine to medium sands.
40	42	Bedrock

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-PW-04Legal Descriptive
Location: T 3N R 8W Sec 23 Tract DBB Location: Center of Colorado TailingsRecorded Hole Started: Hole Completed: Drilling
By: BG Time: _____ Date: 08/25/89 Time: 1600 Date: 08/25/89 Driller: Lock Company: O'KeefeDrill Drilling Pilot Hole Reamed Hole
Method: Cable Tool Fluids Used: None Diameter: 7 7/8" Diameter: N/ATotal Depth Total Depth Total Depth Diameter and
Drilled: 24' Reamed: N/A Cased Below G.S.: 22.5' Type of Casing: 5 5/8" Stainless SteelWeight or Interval Perforated Target SBC Packer Type and
Gage of Casing: .250" or Screened Below G.S.: 9.5-19.5' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u>X</u>	_____	_____ No casing in hole
Well Test Pumped?	<u>X</u>	_____	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	<u>X</u>	_____	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	<u>X</u> Screened by pulling casing
			_____ Field saw cut Hacksaw
			_____ Mechanical slots _____ (size)
Static			_____ Other (specify) <u>.5" Stainless</u>

Water Level: _____	Date/Time Measured: _____	<u>X</u> MP Height Above (+/-)
Measuring Point		or Below G.S.: _____
Description/Elevation: _____		

Well Annulus
Completion Description: .000 Slot 22.5-19.5'; .05" Slot 19.5-9.5'; .000 Slot 9.5-0'; native backfill

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	15	Dark brownish gray, medium to coarse sands with silt, clay. At 13' hole began making water.
15	16.8	Brownish gray coarse to medium sands. A few gravels, micaceous. pH = 5.9. SC = 850 (uncorrected). T = 17°C
16.8	17	Green sandy clay with abundant coarse micas.
17	18	Hard drilling (gravels?) pH = 5.9. SC (uncorrected) = 720. T = 15°C
18	24	Coarse sand and gravel. Large granitic fragments; possibly nearing bedrock.
24		Bedrock: quartz monzonite; highly fractured, oxidized, weathered.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-2-08-1M

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract BCD Location: 10' North of Well No. 32S

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 1100 Date: 08/15/89 Time: 1130 Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 15' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u> </u>	<u>X</u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u>X</u> Saw cut
Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u> </u>	Date/Time Measured: <u> </u>		<u> </u> Other (specify) <u> </u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u> </u>			or Below G.S.: <u> </u>

Well Annulus
Completion Description: 1/4" pea gravel: 9-15'; Enviroplug: 2-9'; Cuttings to surface

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
<u>0</u>	<u>1</u>	<u>Sand with silt, orangish brown, medium to fine, angular to subangular.</u>
<u>1</u>	<u>2</u>	<u>Black clayey silt, organics, sticky and plastic.</u>
<u>2</u>	<u>15</u>	<u>Silty sand, minor clay, micaceous, gray to dark gray, moist, saturated at 6'. More gravels.</u>

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-2-08-1E

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract BCD Location: 10' East of Well No. 32S

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: _____ Date: 08/15/89 Time: _____ Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 10-15' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			<u>X</u> Saw cut
Static			_____ Mechanical slots _____ (size)
Water Level: _____	Date/Time Measured: _____		_____ Other (specify) _____

Measuring Point MP Height Above (+/-)
Description/Elevation: _____ or Below G.S.: _____

Well Annulus

Completion Description: 1/4" pea gravel; 10-15'; Enviroplug; 1.5-10'; Cuttings to surface.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Sand, silty; tan to buff.
2	3	Black clayey silty sand, scattered gravels.
3	15	Clayey, silty sand, gray, saturated, micaceous. More gravels.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-2-08-2F

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract BCD Location: 50' East of Well No. 32S

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: _____ Date: 08/15/89 Time: _____ Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 15' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing

Static _____
Water Level: _____ Date/Time Measured: _____
Measuring Point _____ MP Height Above (+/-)
Description/Elevation: _____ or Below G.S.: _____

Well Annulus
Completion Description: 1/4" pea gravel: 15-9'; Enviroplug: 1.5-7'; Cuttings to surface.

Remarks: Piezometer

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	2	Sand with silt, orangish brown, medium, angular to subangular, micaceous, moist.
2	3	Clayey wilt, black, organics.
3	15	Silty sand, gray, saturated, sticky, scattered gravels, micaeous.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-2-OB-2N

Legal Descriptive
Location: T 3N R 7W Sec 19 Tract BCD Location: 50' North of Pumping Well No. 32S

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: _____ Date: 08/15/89 Time: _____ Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 15' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			<u>X</u> Saw cut

Static
Water Level: _____ Date/Time Measured: _____ _____ Mechanical slots _____ (size)

Measuring Point
Description/Elevation: _____ MP Height Above (+/-)
or Below G.S.: _____

Well Annulus
Completion Description: 1/4" pea gravel: 9-15'; Enviroplug: 1-9'; Cuttings to surface.

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1	Sand with silt, orangish brown, medium to fine, angular to subangular.
1	2	Black clayey silt, organics, sticky and plastic.
2	15	Silty sand, minor clay, micaceous, gray to dark gray, moist, saturated at 6'. More gravels.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name or Number: AI-3-OB-1S

Legal Descriptive
Location: T 3N R 8W Sec 24 Tract CBB Location: 10' South of Well No. PW-03

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 1605 Date: 08/15/89 Time: 1640 Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 14.5' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 9.5-14.5' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	ND	Method Perforated or Screened
Well Developed?	<u> </u>	<u>X</u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u>X</u> Saw cut
Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u> </u>	Date/Time Measured: <u> </u>		<u> </u> Other (specify) <u> </u>
Measuring Point			MP Height Above (+/-)
Description/Elevation: <u> </u>			or Below G.S.: <u> </u>

Well Annulus
Completion Description: 1/4" pea gravel; 14.5-8.0', Enviroplug; 8.0-2.0', Cuttings; 2.0' - surface

Remarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1	Sandy fill material, gravels, gray and brown.
1	3	Silty sand, yellowish tan, medium to fine grained, scattered gravels, subangular.
3	15	Silty sand, brown to dark brown, moist, scattered gravel.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-3-08-2S

Legal

Descriptive

Location: T 3N R 8W Sec 24 Tract CBB Location: 50' South of Well No. PW-03Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 1630 Date: 08/15/89 Time: 1710 Date: 08/15/89 Driller: Butch Company: CNIDrill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 14.8' Type of Casing: 2" PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 14.8-9.8' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u> </u>	<u>X</u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u>X</u> Saw cut

Static
Water Level: Date/Time Measured: Mechanical slots (size)
 Other (specify) Measuring Point
Description/Elevation: MP Height Above (+/-)
or Below G.S.: Well Annulus
Completion Description: 1/4" pea gravel; 14.8-8.0'. Enviroplug; 8.0-1.5'. Cuttings; 1.5' - surfaceRemarks:

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
<u>0</u>	<u>1</u>	<u>Sandy fill material, gravels, gray and brown.</u>
<u>1</u>	<u>3</u>	<u>Silty sand, yellowish tan, medium to fine grained, scattered gravels, subangular.</u>
<u>3</u>	<u>15</u>	<u>Silty sand, brown to dark brown, moist, scattered gravel.</u>

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-3-08-1E

Legal

Descriptive

Location: T 3N R 8W Sec 24 Tract C8B Location: 10' East of Well No. PW-03

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 1535 Date: 08/15/89 Time: 1600 Date: 08/15/89 Driller: _____ Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 14.2' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 14.2-9.2' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			<u>X</u> Saw cut

Static
Water Level: _____ Date/Time Measured: _____
_____ Mechanical slots _____ (size)

Measuring Point
Description/Elevation: _____ MP Height Above (+/-)
or Below G.S.: _____

Well Annulus
Completion Description: 1/4" pea gravel; 14.2-7.0'. Enviroplug; 7.0-2.0'. Cuttings; 2.0' - surface

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1	Sandy fill material, gravels, gray and brown.
1	3	Silty sand, yellowish tan, medium to fine grained, scattered gravels, subangular.
3	15	Silty sand, brown to dark brown, moist, scattered gravel.

TEST HOLE LOG

State: Montana County: Silver Bow Project: SBC CERCLA Hole Name
or Number: AI-3-08-2E

Legal Descriptive
Location: T 3N R 8W Sec 24 Tract CBB Location: 50' East of Well No. PW-03

Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 1515 Date: 08/05/89 Time: _____ Date: 08/15/89 Driller: Butch Company: CNI

Drill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"

Total Depth Total Depth Total Depth Diameter and
Drilled: 15.9' Reamed: N/A Cased Below G.S.: 10.7-15.7' Type of Casing: 2" PVC

Weight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10.7-15.7' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	_____	<u>X</u>	_____ No casing in hole
Well Test Pumped?	_____	<u>X</u>	_____ Open bottom
Water Samples Taken?	_____	<u>X</u>	_____ Slotted with Mill's Knife
Material Samples Taken?	_____	<u>X</u>	_____ Slotted with a torch
E-Logs?	_____	<u>X</u>	_____ Screened by pulling casing
			<u>X</u> Saw cut

Static _____
Water Level: _____ Date/Time Measured: _____
Measuring Point _____ MP Height Above (+/-)
Description/Elevation: _____ or Below G.S.: _____

Well Annulus
Completion Description: 1/4" washed pea gravel: 9-15' BGS, Enviroplug to .5' BGS, cuttings to surface

Remarks: _____

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	1	Sandy fill material, gravels, gray and brown.
1	3	Silty sand, yellowish tan, medium to fine grained, scattered gravels, subangular.
3	15	Silty sand, brown to dark brown, moist, scattered gravel.

Hole Name

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	5	Sandy tailings, light tan to orange, iron oxide staining, fine to medium grained.
5	9	Sandy, silty tailings, gray, saturated, medium to fine grained.
9	15	Clayey silty sandy tailings, dark gray to black, fine grained, harder, more compacted layer.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-4-08-1N

Legal

Descriptive

Location: T 3N R 8W Sec 23 Tract DBB Location: 10' North of Well No. PW-04Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 0750 Date: 08/16/89 Time: 0825 Date: 08/16/89 Driller: Butch Company: CNIDrill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 15' Type of Casing: 2" PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u> </u>	<u>X</u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u>X</u> Saw cut

Static			<u> </u> Mechanical slots <u> </u> (size)
Water Level: <u> </u>	Date/Time Measured: <u> </u>		<u> </u> Other (specify) <u> </u>
Measuring Point		MP Height Above (+/-)	
Description/Elevation: <u> </u>		or Below G.S.: <u> </u>	

Well Annulus

Completion Description: 1/4" pea gravel; 9-15'; Enviroplug; 1-9'; Cuttings to surfaceRemarks: Piezometer

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	5	Sandy tailings, light tan to orange, iron oxide staining, fine to medium grained.
5	9	Sandy, silty tailings, gray, saturated, medium to fine grained.
9	15	Clayey silty sandy tailings, dark gray to black, fine grained, harder, more compacted layer.

TEST HOLE LOG

Hole Name

State: Montana County: Silver Bow Project: SBC CERCLA or Number: AI-4-08-2H

Legal

Descriptive

Location: T 3N R 8W Sec 23 Tract dbb Location: 50' North of Well No. PW-04Recorded Hole Started: Hole Completed: Drilling
By: DJ Time: 0830 Date: 08/16/89 Time: 0900 Date: 08/16/89 Driller: Butch Company: CNIDrill Drilling Pilot Hole Reamed Hole
Method: Auger Fluids Used: N/A Diameter: 6" Diameter: 6"Total Depth Total Depth Total Depth Diameter and
Drilled: 15' Reamed: N/A Cased Below G.S.: 15' Type of Casing: 2" PVCWeight or Interval Perforated Target Packer Type and
Gage of Casing: Sch 40 or Screened Below G.S.: 10-15' Aquifer: Alluvium Depth Below G.S.: N/A

DURING INSTALLATION WAS:	YES	NO	Method Perforated or Screened
Well Developed?	<u> </u>	<u>X</u>	<u> </u> No casing in hole
Well Test Pumped?	<u> </u>	<u>X</u>	<u> </u> Open bottom
Water Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with Mill's Knife
Material Samples Taken?	<u> </u>	<u>X</u>	<u> </u> Slotted with a torch
E-Logs?	<u> </u>	<u>X</u>	<u> </u> Screened by pulling casing
			<u>X</u> Saw cut
			<u> </u> Mechanical slots <u> </u> (size)
			<u> </u> Other (specify) <u> </u>

Static

Water Level: Date/Time Measured: Measuring Point MP Height Above (+/-)
Description/Elevation: or Below G.S.:

Well Annulus

Completion Description: 1/4" pea gravel: 9-15'; Enviroplug: 1-9'; Cuttings to surfaceRemarks: Piezometer

From	To	DRILLING LOG Geological, Drilling, and Water Conditions and Sampling
0	5	Sandy tailings, light tan to orange, iron oxide staining, fine to medium grained.
5	9	Sandy, silty tailings, gray, saturated, medium to fine grained.
9	15	Clayey silty sandy tailings, dark gray to black, fine grained, harder, more compacted layer.

APPENDIX B-3

Area I Well Inventory Data Base

Revision level: FINAL

05/08/90

Well Number	Cross Reference Well Numbers	Legal Location	Well Type	Total Depth Drilled (ft)	Total Depth Cased (ft)	Casing Diameter and Type (in)	Schedule or Wall Thickness (in)	Borehole Diameter (in)	Screened or Perforated Interval (ft.) and Type (see footnote)	Probable Aquifer (see footnote)
AI-GW-GS-07		03N07W19ABD	MONITORING	180.0	160.0	4-PVC	SCH. 40	7.5	130-160	Ts
AI-GW-GS-08		03N07W19CBA	MONITORING	151.0	145.5	4-PVC	SCH. 40	7.5	127.5-145.5	Ts
AI-GW-GS-09		03N07W19CBA	MONITORING	75.5	75.5	4-PVC	SCH. 40	7.5	60.5-75.5	Ts
AI-GW-GS-10D		03N07W19ABD	MONITORING	112.0	110.0	2-PVC	SCH. 40	7.5	100-110	Ts
AI-GW-GS-10S		03N07W19ABD	MONITORING	29.0	29.0	2-PVC	SCH. 40	7.5	19-29	Qal
AI-GW-GS-11		03N07W19CBA	MONITORING	18.0	18.0	2-PVC	SCH. 40	7.5	8-18	Qal
AI-GW-GS-12		03N08W24C8B	MONITORING	29.5	29.5	2-PVC	SCH. 40	7.5	19.5-29.5	Qal
AI-GW-GS-13A		03N08W2480C	MONITORING	30.5	17.5	4-PVC	SCH. 40	7.5	12.5-17.5	Qal
AI-GW-GS-13B		03N08W2480C	MONITORING	34.0	34.0	6-STEEL	SCH. 40	7.5	24-28 31-32	Qal
AI-GW-GS-14		03N07W19C8D	MONITORING	63.0	62.0	2-PVC	SCH. 40	7.5	52-62	Ts
AI-GW-GS-15D		03N08W24CAB	MONITORING	32.0	32.0	2-PVC	SCH. 40	7.5	27-32	Qal
AI-GW-GS-15S		03N08W24CAB	MONITORING	15.0	15.0	2-PVC	SCH. 40	7.5	0-15	Qal
AI-GW-GS-16		03N08W24C8B	MONITORING	17.5	16.2	2-PVC	SCH. 40	9.5	11.2-16.2	Qal
AI-GW-GS-17D		03N08W24C8B	MONITORING	28.0	27.7	2-PVC	SCH. 40	6	17.7-27.7	Qal
AI-GW-GS-17S		03N08W24C8B	MONITORING	10.3	8.0	2-PVC	SCH. 40	6	3-8	Qal
AI-GW-GS-18		03N08W23DAD	MONITORING	20.0	16.0	2-PVC	SCH. 40	9.5	11-16	Qal
AI-GW-GS-19		03N08W24C8B	MONITORING	22.5	18.5	2-PVC	SCH. 40	9.5	13.5-18.5	Qal
AI-GW-GS-20		03N08W248CC	MONITORING	25.0	23.0	2-PVC	SCH. 40	9.5	18-23	Qal
AI-GW-GS-21D		03N08W24C8D	MONITORING	35.0	33.6	2-PVC	SCH. 40	6	23.6-33.6	Qal
AI-GW-GS-21S		03N08W24C8D	MONITORING	23.0	21.0	2-PVC	SCH. 40	9.5	11-21	Qal
AI-GW-GS-22		03N08W23D8B	MONITORING	20.3	15.0	2-SST	SCH. 40	9.5	5-15	Qal
AI-GW-GS-23		03N08W23D8C	MONITORING	20.3	19.5	2-PVC	SCH. 40	9.5	14.5-19.5	Qal
AI-GW-GS-24D		03N08W23DAA	MONITORING	32.5	31.7	2-PVC	SCH. 40	6	21.7-31.7	Qal
AI-GW-GS-24S		03N08W23DAA	MONITORING	15.0	14.5	2-PVC	SCH. 40	9.5	9.5-14.5	Qal
AI-GW-GS-25		03N08W23DAB	MONITORING	12.5	9.5	2-PVC	SCH. 40	9.5	4.5-9.5	Qal
AI-GW-GS-26		03N08W238DC	MONITORING	15.0	14.5	2-PVC	SCH. 40	9.5	9.5-14.5	Qal
AI-GW-GS-27D		03N08W238CB	MONITORING	23.6	22.2	2-PVC	SCH. 40	6	12.2-22.2	Qal
AI-GW-GS-27S		03N08W238CB	MONITORING	12.5	11.0	2-PVC	SCH. 40	9.5	7-12	Qal
AI-GW-GS-28		03N08W24D0A	MONITORING	12.5	11.0	2-PVC	SCH. 40	9.5	6-11	Qal
AI-GW-GS-29D		03N08W24D8B	MONITORING	40.0	39.6	2-PVC	SCH. 40	6	29.6-39.6	Qal
AI-GW-GS-29S		03N08W24D8B	MONITORING	13.5	13.0	2-PVC	SCH. 40	9.5	8-13	Qal
AI-GW-GS-30D		03N07W198CD	MONITORING	39.8	38.5	2-PVC	SCH. 40	6	28.5-38.5	Qal
AI-GW-GS-30S		03N07W198CD	MONITORING	19.9	18.7	2-PVC	SCH. 40	6	13.7-18.7	Qal
AI-GW-GS-31D		03N07W19CBA	MONITORING	40.4	38.6	2-PVC	SCH. 40	6	28.6-38.6	Qal
AI-GW-GS-31S		03N07W19CBA	MONITORING	20.0	19.6	2-PVC	SCH. 40	6	14.6-19.6	Qal
AI-GW-GS-32		03N07W198CD	MONITORING	39.9	37.0	2-PVC	SCH. 40	6	27-37	Qal
AI-GW-GS-33		03N07W198CB	MONITORING	50.0	49.0	2-PVC	SCH. 40	6	39-49	Qal
AI-GW-GS-34D		03N08W23DAD	MONITORING	33.0	31.2	2-PVC	SCH. 40	6	21.2-31.2	Qal
AI-GW-GS-34S		03N08W23DAD	MONITORING	19.2	17.3	2-PVC	SCH. 40	6	12.3-17.3	Qal
AI-GW-GS-35D		03N07W198AC	MONITORING	35.0	33.5	2-PVC	SCH. 40	6	23.5-33.5	Qal
AI-GW-GS-35S		03N07W198AC	MONITORING	21.5	19.3	2-PVC	SCH. 40	6	14.3-19.3	Qal
AI-GW-GS-40		03N07W19AAB	MONITORING	63.0	62.0	2-PVC	SCH. 40	6	52-62	Qal
AI-GW-GS-41D		03N07W19A8B	MONITORING	61.5	60.5	2-PVC	SCH. 40	6	50.5-60.5	Qal
AI-GW-GS-41S		03N07W19A8B	MONITORING	42.0	38.5	2-PVC	SCH. 40	6	33.5-38.5	Qal

Notes on screen or perforation methods: 1. Open bottom only. 2. Slotted with Mill's Knife. 3. Slotted with a torch. 4. Saw cut.

Notes on probable aquifer: Qal = Quaternary Alluvium, Tv = Tertiary volcanics, Tqm = Tertiary Quartz Monzonite, Ts = Tertiary Sediments,

U = unknown.

General Note: Blanks indicate that data are unknown or not applicable.

Revision Level: FINAL
Static Water Level

05/08/90

Well Number		Date Measured	Measuring Point (MP) Description	MP Height From G.S. (ft)	Measuring Point Elevation		Date Well Completed	Drilling Company	Drilling Method
		(ft)			(ft)	From			
=====									
AI-GW-GS-07	24.3	10/89	TOP OF STEEL	1.9	5479.40	SURV	11/26/85	O'KEEFE	CABLE TOOL
AI-GW-GS-08	9.9	10/89	TOP OF STEEL	1.5	5458.00	SURV	11/25/85	O'KEEFE	CABLE TOOL
AI-GW-GS-09	9.9	10/89	TOP OF STEEL	1.0	5457.70	SURV	11/27/85	O'KEEFE	CABLE TOOL
AI-GW-GS-10D	21.0	10/89	TOP OF STEEL	0.8	5477.40	SURV	12/04/85	O'KEEFE	CABLE TOOL
AI-GW-GS-10S	19.2	10/89	TOP OF STEEL	0.8	5477.40	SURV	12/04/85	O'KEEFE	CABLE TOOL
AI-GW-GS-11	10.8	10/89	TOP OF STEEL	1.1	5457.40	SURV	12/03/85	O'KEEFE	CABLE TOOL
AI-GW-GS-12	8.8	10/89	TOP OF STEEL	1.5	5442.70	SURV	12/04/85	O'KEEFE	CABLE TOOL
AI-GW-GS-13A	5.1	08/89	TOP OF STEEL	1.6	5441.20	SURV	12/13/85	O'KEEFE	CABLE TOOL
AI-GW-GS-13B	5.0	09/89	TOP OF STEEL	0.5	5440.60	SURV	12/06/85	O'KEEFE	CABLE TOOL
AI-GW-GS-14	8.1	10/89	TOP OF STEEL	1.6	5455.20	SURV	12/12/85	O'KEEFE	CABLE TOOL
AI-GW-GS-15D	9.0	10/89	TOP OF STEEL	0.9	5445.30	SURV	12/16/85	O'KEEFE	CABLE TOOL
AI-GW-GS-15S	9.2	10/89	TOP OF STEEL	0.9	5445.30	SURV	12/16/85	O'KEEFE	CABLE TOOL
AI-GW-GS-16	9.0	10/89	TOP OF STEEL	2.0	5440.40	SURV	06/20/89	CNI	AUGER
AI-GW-GS-17D	3.2	10/89	TOP OF STEEL	2.1	5434.10	SURV	07/31/89	O'KEEFE	CABLE TOOL
AI-GW-GS-17S	3.8	10/89	TOP OF STEEL	2.8	5434.70	SURV	06/29/89	CNI	AUGER
AI-GW-GS-18	10.0	10/89	TOP OF STEEL	2.2	5439.10	SURV	06/30/89	CNI	AUGER
AI-GW-GS-19	13.2	10/89	TOP OF STEEL	1.6	5445.30	SURV	06/30/89	CNI	AUGER
AI-GW-GS-20	18.6	10/89	TOP OF STEEL	1.9	5457.20	SURV	07/05/89	CNI	AUGER
AI-GW-GS-21D	13.2	10/89	TOP OF STEEL	1.8	5447.80	SURV	08/01/89	O'KEEFE	CABLE TOOL
AI-GW-GS-21S	13.0	10/89	TOP OF STEEL	1.6	5447.60	SURV	07/05/89	CNI	AUGER
AI-GW-GS-22	7.6	10/89	TOP OF STEEL	2.5	5435.90	SURV	07/06/89	CNI	AUGER
AI-GW-GS-23	14.9	10/89	TOP OF STEEL	1.5	5437.20	SURV	07/06/89	CNI	AUGER
AI-GW-GS-24D	6.8	10/89	TOP OF STEEL	1.6	5433.50	SURV	07/27/89	O'KEEFE	CABLE TOOL
AI-GW-GS-24S	7.3	10/89	TOP OF STEEL	1.8	5434.10	SURV	07/06/89	CNI	AUGER
AI-GW-GS-25	4.7	10/89	TOP OF STEEL	1.8	5427.80	SURV	07/06/89	CNI	AUGER
AI-GW-GS-26	9.8	10/89	TOP OF STEEL	1.8	5425.70	SURV	07/07/89	CNI	AUGER
AI-GW-GS-27D	5.6	10/89	TOP OF STEEL	1.2	5419.00	SURV	08/04/89	O'KEEFE	CABLE TOOL
AI-GW-GS-27S	6.6	10/89	TOP OF STEEL	2.3	5419.90	SURV	07/07/89	CNI	AUGER
AI-GW-GS-28	4.5	10/89	TOP OF STEEL	2.0	5446.30	SURV	07/07/89	CNI	AUGER
AI-GW-GS-29D	4.5	10/89	TOP OF STEEL	1.9	5443.20	SURV	07/26/89	O'KEEFE	CABLE TOOL
AI-GW-GS-29S	5.1	10/89	TOP OF STEEL	2.3	5443.30	SURV	07/07/89	CNI	AUGER
AI-GW-GS-30D	9.2	10/89	TOP OF STEEL	1.5	5456.30	SURV	07/12/89	O'KEEFE	CABLE TOOL
AI-GW-GS-30S	9.4	10/89	TOP OF STEEL	1.3	5456.50	SURV	07/18/89	O'KEEFE	CABLE TOOL
AI-GW-GS-31D	5.0	10/89	TOP OF STEEL	1.2	5451.80	SURV	07/18/89	O'KEEFE	CABLE TOOL
AI-GW-GS-31S	5.1	10/89	TOP OF STEEL	1.1	5451.60	SURV	07/19/89	O'KEEFE	CABLE TOOL
AI-GW-GS-32	3.5	10/89	TOP OF STEEL	2.1	5450.80	SURV	07/21/89	O'KEEFE	CABLE TOOL
AI-GW-GS-33	25.4	10/89	TOP OF STEEL	1.8	5474.90	SURV	07/24/89	O'KEEFE	CABLE TOOL
AI-GW-GS-34D	7.1	10/89	TOP OF STEEL	1.4	5434.50	SURV	07/27/89	O'KEEFE	CABLE TOOL
AI-GW-GS-34S	7.0	10/89	TOP OF STEEL	1.1	5434.60	SURV	07/27/89	O'KEEFE	CABLE TOOL
AI-GW-GS-35D	12.5	10/89	TOP OF STEEL	1.1	5465.60	SURV	08/03/89	O'KEEFE	CABLE TOOL
AI-GW-GS-35S	12.8	10/89	TOP OF STEEL	2.1	5466.60	SURV	08/03/89	O'KEEFE	CABLE TOOL
AI-GW-GS-40	22.1	10/89	TOP OF STEEL	1.4	5481.30	SURV	07/20/89	O'KEEFE	AIR ROTARY
AI-GW-GS-41D	33.4	10/89	TOP OF STEEL	2.0	5491.30	SURV	07/12/89	O'KEEFE	AIR ROTARY
AI-GW-GS-41S	33.3	10/89	TOP OF STEEL	2.5	5491.90	SURV	07/13/89	O'KEEFE	AIR ROTARY

NOTES: 1) Blanks indicate data not known or not applicable.

2) An "*" indicates that the elevation is based on a datum established by AMC rather than by USGS.

05/08/90

Revision level: FINAL

Well Number	Well Test- Pumped?	Water Samples Taken?	Last Water Sample Date	Material Samples Taken?	Type of Pump	Reported Well Yield (gpm)	Well Owner	Owner's Phone No.
AI-GW-GS-07	Y	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-08	Y	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-09	Y	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-100	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-10S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-11	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-12	N	Y	11/89	N	N/A	10-15	MDHES	444-2821
AI-GW-GS-13A	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-13B	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-14	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-150	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-15S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-16	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-170	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-17S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-18	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-19	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-20	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-210	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-21S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-22	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-23	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-240	N	Y	11/89	N	N/A	10	MDHES	444-2821
AI-GW-GS-24S	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-25	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-26	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-270	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-27S	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-28	N	Y	11/89	N	N/A	10	MDHES	444-2821
AI-GW-GS-290	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-29S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-300	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-30S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-310	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-31S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-32	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-33	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-340	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-34S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-350	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-35S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-40	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-410	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-41S	N	Y	11/89	N	N/A	<5	MDHES	444-2821

NOTE: Blanks indicate data not known or not applicable.

05/08/90

Revision level: FINAL

Well Number	Remarks	Source of Inventory Information (see footnote)
AI-GW-GS-07	LOCATED NEAR CITY-COUNTY CORRAL	CNI
AI-GW-GS-08	LOCATED 75 FT. S OF GEORGE STR.	CNI
AI-GW-GS-09	LOCATED 75 FT. S OF GEORGE STR.	CNI
AI-GW-GS-10D	DUAL COMPLETION WELL WITH GS-10S	CNI
AI-GW-GS-10S	DUAL COMPLETION WELL WITH GS-10D	CNI
AI-GW-GS-11		CNI
AI-GW-GS-12	LOCATED NEAR MISSOULA GULCH	CNI
AI-GW-GS-13A	LOCATED IN BUTTE RED. WORKS AREA	CNI
AI-GW-GS-13B	25 FEET W OF GS-13A	CNI
AI-GW-GS-14	LOCATED ON LAND OWNED BY THE POPE	CNI
AI-GW-GS-15D		CNI
AI-GW-GS-15S	DUAL COMPLETION WELL WITH GS-15D	CNI
AI-GW-GS-16	N CELL OF BUTTE REDUC. WORKS IMPOUNDMENTS	CNI
AI-GW-GS-17D		CNI
AI-GW-GS-17S		CNI
AI-GW-GS-18		CNI
AI-GW-GS-19		CNI
AI-GW-GS-20		CNI
AI-GW-GS-21D		CNI
AI-GW-GS-21S		CNI
AI-GW-GS-22		CNI
AI-GW-GS-23	100 FEET SOUTH OF CO TAILS	CNI
AI-GW-GS-24D	STP YARD, E END	CNI
AI-GW-GS-24S	200 FT. SE OF STP	CNI
AI-GW-GS-25	WEST OF STP, NEAR SBC	CNI
AI-GW-GS-26	300 FT. SOUTH OF RANCHLAND PACKING	CNI
AI-GW-GS-27D		CNI
AI-GW-GS-27S	WEST OF CO TAILS NEAR RANCHLAND CORRALS	CNI
AI-GW-GS-28	NEAR KOA CAMPGROUND	CNI
AI-GW-GS-29D		CNI
AI-GW-GS-29S		CNI
AI-GW-GS-30D	EAST OF KAW AVENUE	CNI
AI-GW-GS-30S		CNI
AI-GW-GS-31D	AT BASE OF LANDFILL	CNI
AI-GW-GS-31S		CNI
AI-GW-GS-32	ADJACENT TO MSD	CNI
AI-GW-GS-33	200 FEET SOUTH OF WESTERN MT RAIL YARD	CNI
AI-GW-GS-34D	COUNTY CRUSHER YARD; W END	CNI
AI-GW-GS-34S		CNI
AI-GW-GS-35D	SOUTHWEST OF ALBERTSONS	CNI
AI-GW-GS-35S		CNI
AI-GW-GS-40	SOUTH OF CONTINENTAL/TEXAS AVE.	CNI
AI-GW-GS-41D	CENTERFIELD, OVER THE FENCE, IT'S GONE	CNI
AI-GW-GS-41S		CNI

NOTE: Source abbreviations: AMC = Anaconda Minerals Company, CNI = Chen-Northern, Inc., DNRC = Montana Department of Natural Resources and Conservation, DSL = Montana Department of State Lands, EPA = U. S. Environmental Protection Agency, MBMG = Montana Bureau of Mines and Geology, MDHES = Montana Department of Health and Environmental Sciences.

05/08/90

Revision level: FINAL

Well Number	Cross Reference Well Numbers	Legal Location	Well Type	Total Depth Drilled (ft)	Total Depth Cased (ft)	Casing Diameter and Type (in)	Schedule or Wall Thickness (in)	Borehole Diameter (in)	Screened or Perforated Interval (ft.) and Type (see footnote)	Probable Aquifer (see footnote)
AI-GW-GS-42D		03N07W19ABB	MONITORING	60.0	57.5	2-PVC	SCH. 40	6	47.5-57.5	Qal
AI-GW-GS-42S		03N07W19ABB	MONITORING	22.0	18.0	2-PVC	SCH. 40	6	13-18	Qal
AI-GW-GS-43D		03N07W19ABD	MONITORING	60.0	59.0	2-PVC	SCH. 40	6	49-59	Qal
AI-GW-GS-43S		03N07W19ABD	MONITORING	28.0	23.0	2-PVC	SCH. 40	6	18-23	Qal
AI-GW-GS-44D		03N07W19ADB	MONITORING	64.0	60.4	2-PVC	SCH. 40	6	50.4-60.4	Qal
AI-GW-GS-44S		03N07W19ADB	MONITORING	30.0	24.7	2-PVC	SCH. 40	6	19.7-24.7	Qal
AI-GW-GS-45		03N07W180CC	MONITORING	59.5	59.0	2-PVC	SCH. 40	6	49-59	Qal
AI-GW-GS-46D		03N07W19AAD	MONITORING	62.0	61.0	2-PVC	SCH. 40	6	51-61	Qal
AI-GW-GS-46S		03N07W19AAD	MONITORING	36.0	29.5	2-PVC	SCH. 40	6	24.5-29.5	Qal
AI-GW-GS-50		03N07W19ABD	MONITORING	272.0	268.0	4-PVC	SCH. 40	8	248-268	Ts
AI-PW-01		03N07W19ABD	PUMPING TEST	45.0	42.0	6-SST	SCH. 40	6	17-42	Qal
AI-PW-02		03N07W19BCD	PUMPING TEST	27.0	25.0	6-SST	SCH. 40	6	0-22	Qal
AI-PW-03		03N08W24CBB	PUMPING TEST	42.0	42.0	6-SST	SCH. 40	6	9-39	Qal
AI-PW-04		03N08W23DBB	PUMPING TEST	22.5	22.5	6-SST	SCH. 40	6	9.5-19.5	Qal
AMC-12		03N07W17AAC	MONITORING	47.0	45.0	6-STEEL	SCH. 40	6	35-45	Qal
AMC-13		03N07W19ADC	IRRIGATION	57.0	55.0	6-STEEL	SCH. 40	6	47-55	Qal
AMC-15		03N07W20ADA	MONITORING	103.0	101.0	6-STEEL	SCH. 40	6	97-101	Qal
AMC-23		03N08W24DAA	MONITORING	31.0	33.5	6-STEEL	SCH. 40	6	19-29	Qal
AMC-24		03N08W24DAD	MONITORING	25.0	28.0	6-STEEL	SCH. 40	6	13-23	Qal
AMC-5		03N07W17CC	MONITORING	90.0	90.0	6-STEEL	SCH. 40	6	53-63	Qal
AMC-6		03N07W17CC	MONITORING	65.0	63.0	6-STEEL	SCH. 40	6	55-65	Qal
AMC-8		03N07W17ABA	MONITORING	67.0	65.0	6-STEEL	SCH. 40	6	4.0-7.0	Qal
BMW-10A		03N08W23DAD	MONITORING	7.0	7.0	4.5-PVC	SCH. 40	8	55-75	Tqm
BMW-11B		03N08W24	MONITORING	75.0	75.0	4-PVC	SCH. 40	6	2.6-7.6	Qal
BMW-12A		03N08W24	MONITORING	9.0	7.6	4-PVC	SCH. 40	8	45-65	Tqm
BMW-13B		03N08W24	MONITORING	65.0	65.0	4-PVC	SCH. 40	6	22.0-32.0	Qal
BMW-1A		03N08W23DCC	MONITORING	36.0	36.0	4.5-PVC	SCH. 40	8	38.7-58.7	Qal
BMW-1B		03N08W23DCC	MONITORING	59.3	58.7	4.5-PVC	SCH. 40	8	13.5-19.0	BEDROCK
BMW-2A		03N08W23CAD	MONITORING	19.5	19.0	4.5-PVC	SCH. 40	3	45.0-55.0	Qal
BMW-2B		03N08W23CAD	MONITORING	55.0	55.0	4.5-PVC	SCH. 40	8	2.5-4.5	Tqm
BMW-2T		03N08W23CAD	MONITORING	6.0	6.0	4.5-PVC	SCH. 40	8	14.5-19.0	TAILINGS
BMW-3A		03N08W23CAD	MONITORING	19.0	19.0	4.5-PVC	SCH. 40	8	36.0-50.0	Qal
BMW-3B		03N08W23CAA	MONITORING	50.0	50.0	4.5-PVC	SCH. 40	8	5.5-11.5	Tqm
BMW-4A		03N08W23CAB	MONITORING	19.0	19.0	4.5-PVC	SCH. 40	8	27.5-37.5	Qal
BMW-4B		03N08W23CAB	MONITORING	38.0	37.5	4.5-PVC	SCH. 40	8	2.0-4.0	Tqm
BMW-4T		03N08W23CAB	MONITORING	4.0	4.0	4.5-PVC	SCH. 40	8	5.0-8.0	TAILINGS
BMW-5A		03N08W23DBC	MONITORING	9.0	8.0	4.5-PVC	SCH. 40	8	37.5-57.5	Qal
BMW-5B		03N08W23DBC	MONITORING	59.0	57.5	4.5-PVC	SCH. 40	8	59.0-79.0	Tqm
BMW-6B		03N08W23BDC	MONITORING	79.0	79.0	4.5-PVC	SCH. 40	8	4.5-14.5	Tqm
BMW-7A		03N08W24CBA	MONITORING	19.0	14.5	4.5-PVC	SCH. 40	8	37.4-72.0	Qal
BMW-7B		03N08W24CBD	MONITORING	72.0	72.0	4.5-PVC	SCH. 40	8	5.0-11.3	Tqm
BMW-8A		03N08W24BCD	MONITORING	11.3	11.3	4.5-PVC	SCH. 40	8	14.8-24.8	Qal
BMW-8B		03N08W24BCD	MONITORING	26.0	24.8	4.5-PVC	SCH. 40	8	15.5-25.5	Tqm
BMW-9A		03N08W23DAC	MONITORING	27.0	25.5	4.5-PVC	SCH. 40	8		Qal

Notes on screen or perforation methods: 1. Open bottom only. 2. Slotted with Mill's Knife. 3. Slotted with a torch. 4. Saw cut.

Notes on probable aquifer: Qal = Quaternary Alluvium, Tv = Tertiary volcanics, Tqm = Tertiary Quartz Monzonite, Ts = Tertiary Sediments,

U = unknown.

General Note: Blanks indicate that data are unknown or not applicable.

Revision level: FINAL

Static Water Level

Measuring Point Elevation

05/08/90

Well Number	(ft)	Date Measured	Measuring Point (MP) Description	MP Height From G.S. (ft)	Measuring Point Elevation		Date Well Completed	Drilling Company	Drilling Method
					(ft)	Determined From			
A1-GW-GS-42D	14.1	10/89	TOP OF STEEL	1.7	5471.10	SURV	07/13/89	O'KEEFE	AIR ROTARY
A1-GW-GS-42S	13.8	10/89	TOP OF STEEL	2.0	5471.40	SURV	07/14/89	O'KEEFE	AIR ROTARY
A1-GW-GS-43D	17.7	10/89	TOP OF PVC	0.0	5475.00	SURV	07/17/89	O'KEEFE	AIR ROTARY
A1-GW-GS-43S	17.4	10/89	TOP OF PVC	0.0	5475.00	SURV	07/17/89	O'KEEFE	AIR ROTARY
A1-GW-GS-44D	19.7	10/89	TOP OF PVC	0.0	5476.20	SURV	07/19/89	O'KEEFE	AIR ROTARY
A1-GW-GS-44S	19.0	10/89	TOP OF PVC	0.0	5476.20	SURV	07/18/89	O'KEEFE	AIR ROTARY
A1-GW-GS-45	31.4	10/89	TOP OF STEEL	1.7	5490.90	SURV	07/21/89	O'KEEFE	AIR ROTARY
A1-GW-GS-46D	24.6	10/89	TOP OF PVC	0.0	5484.00	SURV	08/02/89	O'KEEFE	AIR ROTARY
A1-GW-GS-46S	25.0	10/89	TOP OF PVC	0.0	5483.80	SURV	08/03/89	O'KEEFE	AIR ROTARY
A1-GW-GS-50	25.0	10/89	TOP OF PVC	0.0	5475.70	SURV	08/02/89	O'KEEFE	AIR ROTARY
A1-PW-01	21.2	9/89	TOP OF STEEL	2.5	0.00		08/28/89	O'KEEFE	CABLE TOOL
A1-PW-02	3.0	9/89	TOP OF STEEL	1.4	0.00		08/28/89	O'KEEFE	CABLE TOOL
A1-PW-03	8.4	9/89	TOP OF STEEL	1.3	0.00		08/24/89	O'KEEFE	CABLE TOOL
A1-PW-04	7.0	10/89	TOP OF STEEL	3.0	0.00		08/25/89	O'KEEFE	CABLE TOOL
AMC-12	21.3	9/89	TOP OF STEEL	2.0	5480.10	SURV	10/04/82	O'KEEFE	CABLE TOOL
AMC-13	19.7	9/89	TOP OF STEEL	2.4	5475.30	SURV	06/17/77	O'KEEFE	CABLE TOOL
AMC-15	90.4	12/10/85	TOP STEEL	3.0	0.00		08/19/80	O'KEEFE	CABLE TOOL
AMC-23	5.4	03/28/85	CASING TOP	1.8	5448.30	SURV	07/06/83	O'KEEFE	CABLE TOOL
AMC-24	9.3	03/28/85	CASING TOP	1.9	5452.10	SURV	10/05/82	O'KEEFE	CABLE TOOL
AMC-5	77.1	12/10/89	TOP OF STEEL	2.1	5517.60	SURV	/	O'KEEFE	CABLE TOOL
AMC-6	33.9	9/89	TOP OF STEEL	1.9	5493.40	SURV	10/06/82	O'KEEFE	CABLE TOOL
AMC-8	61.9	9/89	TOP OF STEEL	2.0	5525.60	SURV	10/04/82	O'KEEFE	CABLE TOOL
BMW-10A	5.0	07/12/89	TOP OF PVC	2.3	5437.70	SURV	07/11/89	H&L	ROTARY
BMW-11B	10.9	09/15/89	TOP OF PVC	1.0	0.00		09/15/89	H & L	AIR ROTARY
BMW-12A	4.4	09/15/89	TOP OF PVC, NORTH SIDE	0.0	0.00		09/13/89	H & L	AIR ROTARY
BMW-13B	5.3	09/15/89	TOP OF PVC	0.9	0.00		09/15/89	H & L	AIR ROTARY
BMW-1A	6.7	07/12/89	TOP OF PVC	0.3	5433.20	SURV	06/27/89	H&L	ROTARY
BMW-1B	7.0	07/12/89	TOP OF PVC	0.7	5433.90	SURV	06/28/89	H&L	ROTARY
BMW-2A	5.8	06/28/89	TOP OF PVC	1.2	5423.70	SURV	06/28/89	H&L	ROTARY
BMW-2B	7.1	07/12/89	TOP OF PVC	1.0	5424.20	SURV	07/06/89	H&L	ROTARY
BMW-2T	6.5	07/12/89	TOP OF PVC	1.3	5423.80	SURV	06/28/89	H&L	ROTARY
BMW-3A	6.5	07/12/89	TOP OF PVC	1.0	5421.90	SURV	06/30/89	H&L	ROTARY
BMW-3B	6.3	07/12/89	TOP OF PVC	0.9	5421.70	SURV	06/30/89	H&L	ROTARY
BMW-4A	2.7	07/12/89	TOP OF PVC	0.7	5416.00	SURV	07/07/89	H&L	ROTARY
BMW-4B	4.0	07/12/89	TOP OF PVC	0.6	5419.30	SURV	07/07/89	H&L	ROTARY
BMW-4T	3.5	07/12/89	TOP OF PVC	1.0	5418.90	SURV	07/06/89	H&L	ROTARY
BMW-5A	7.3	07/12/89	TOP OF PVC	0.6	5434.60	SURV	07/06/89	H&L	ROTARY
BMW-5B	13.1	07/12/89	TOP OF PVC	0.8	5434.90	SURV	07/07/89	H&L	ROTARY
BMW-6B	10.2	07/12/89	TOP OF PVC	0.9	5426.10	SURV	07/08/89	H&L	ROTARY
BMW-7A	2.3	07/12/89	TOP OF PVC	1.6	5435.70	SURV	07/08/89	H&L	ROTARY
BMW-7B	2.3	07/12/89	TOP OF PVC	1.0	5435.60	SURV	07/09/89	H&L	ROTARY
BMW-8A	7.4	07/09/89	TOP OF PVC	2.0	5444.60	SURV	07/09/89	H&L	ROTARY
BMW-8B	7.6	07/10/89	TOP OF CASING	1.9	5444.20	SURV	07/10/89	H&L	ROTARY
BMW-9A	9.0	07/12/89	TOP OF PVC	2.3	5437.40	SURV	07/11/90	H&L	ROTARY

NOTES: 1) Blanks indicate data not known or not applicable.

2) An "*" indicates that the elevation is based on a datum established by AMC rather than by USGS.

05/08/90

Revision level: FINAL

Well Number	Well Test- Pumped?	Water Samples Taken?	Last Water Sample Date	Material Samples Taken?	Type of Pump	Reported Well Yield (gpm)	Well Owner	Owner's Phone No.
AI-GW-GS-42D	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-42S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-43D	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-43S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-44D	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-44S	N	Y	11/89	N	N/A	5	MDHES	444-2821
AI-GW-GS-45	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-46D	N	Y	11/89	N	N/A	5-10	MDHES	444-2821
AI-GW-GS-46S	N	Y	11/89	N	N/A	<5	MDHES	444-2821
AI-GW-GS-50	N	Y	11/89	Y	N/A	<5	MDHES	444-2821
AI-PW-01	Y	Y	11/89	Y	N/A	2	MDHES	444-2821
AI-PW-02	Y	N		Y	N/A	8	MDHES	444-2821
AI-PW-03	Y	N		Y	N/A	48	MDHES	444-2821
AI-PW-04	Y	N		Y	N/A	13	MDHES	444-2821
AMC-12		YES	1989		NONE		AMC	723-4311
AMC-13		YES	1989	NO	NONE		CITY OF BUTTE	723-8262
AMC-15		YES	1985		NONE		AMC	723-4311
AMC-23		YES	1985	NO	NONE		AMC	723-4311
AMC-24		YES	1985	NO	NONE		AMC	723-4311
AMC-5		YES	1985		NONE		AMC	723-4311
AMC-6		YES	1989		NONE		AMC	723-4311
AMC-8		YES	1989		NONE		AMC	723-4311
BMW-10A		YES	1989	NO			ARCO	
BMW-11B	N	Y	09/15/89	Y			ARCO	
BMW-12A	N	N		N			ARCO	
BMW-13B	N	Y	09/15/89	Y			ARCO	
BMW-1A		YES	1989	NO			ARCO	
BMW-1B		YES	1989	NO			ARCO	
BMW-2A		YES	1989	NO			ARCO	
BMW-2B		YES	1989	NO			ARCO	
BMW-2T		YES	1989	NO			ARCO	
BMW-3A		YES	1989	NO			ARCO	
BMW-3B		YES	1989	NO			ARCO	
BMW-4A		YES	1989	NO			ARCO	
BMW-4B		YES	1989	NO			ARCO	
BMW-4T		YES	1989	NO			ARCO	
BMW-5A		YES	1989	NO			ARCO	
BMW-5B		YES	1989	NO			ARCO	
BMW-6B		YES	1989	NO			ARCO	
BMW-7A		YES	1989	NO			ARCO	
BMW-7B		YES	1989	NO			ARCO	
BMW-8A		YES	1989	NO			ARCO	
BMW-8B		YES	1989	NO			ARCO	
BMW-9A		YES	1989	NO			ARCO	

NOTE: Blanks indicate data not known or not applicable.

05/08/90

Revision level: FINAL

Well Number	Remarks	Source of Inventory Information (see footnote)
AI-GW-GS-420	CITY/CO. MAINTENANCE YARD	CNI
AI-GW-GS-42S		CNI
AI-GW-GS-430		CNI
AI-GW-GS-43S		CNI
AI-GW-GS-440	NW CORNER OF CLARK PARK	CNI
AI-GW-GS-44S		CNI
AI-GW-GS-45	150 FT SOUTH OF HOME PLATE	CNI
AI-GW-GS-460	2035 GRAND AVENUE-- FARMER'S INSURANCE	CNI
AI-GW-GS-46S	FARMERS INSURANCE	CNI
AI-GW-GS-50		CNI
AI-PW-01	LOCATED NEAR CITY-COUNTY SHOP COMPLEX	CNI
AI-PW-02		CNI
AI-PW-03		CNI
AI-PW-04	CENTER OF COLORADO TAILINGS	CNI
AMC-12		
AMC-13		
AMC-15		
AMC-23		
AMC-24		
AMC-5		
AMC-6		
AMC-8		
BMW-10A	LOCATED ~100 FT. N OF CENTENNIAL RD., N OF SBC AND CO TAILINGS	
BMW-11B	LOCATED 170 FT. WEST OF BMW-07 ALONG THE ROAD	
BMW-12A	LOCATED AT SW CORNER OF THE SEWER PLANT, OUTSIDE FENCE LINE	
BMW-13B		
BMW-1A		
BMW-1B		
BMW-2A		
BMW-2B		
BMW-2T		
BMW-3A		
BMW-3B		
BMW-4A		
BMW-4B		
BMW-4T		
BMW-5A		
BMW-5B		
BMW-6B		
BMW-7A		
BMW-7B		
BMW-8A		
BMW-8B		
BMW-9A		

NOTE: Source abbreviations: AMC = Anaconda Minerals Company, CNI = Chen-Northern, Inc., DNRC = Montana Department of Natural Resources and Conservation, DSL = Montana Department of State Lands, EPA = U. S. Environmental Protection Agency, MBMG = Montana Bureau of Mines and Geology, MDHES = Montana Department of Health and Environmental Sciences.

APPENDIX B-3: AREA I OPERABLE UNIT PHASE II REMEDIAL INVESTIGATION - WELL INVENTORY

Revision level: FINAL

05/08/90

Well Number	Cross Reference Well Numbers	Legal Location	Well Type	Total Depth Drilled (ft)	Total Cased Depth (ft)	Casing Diameter and Type (in)	Schedule or Wall Thickness (in)	Borehole Diameter (in)	Screened or Perforated Interval (ft.) and Type (see footnote)	Probable Aquifer (see footnote)
CT-84-1		03N08W23DAB	MONITORING	35.0	16.0	4-PVC	SCH. 40		12-17	Qal
CT-84-2		03N08W24CBA	MONITORING	25.0	15.0	4-PVC	SCH. 40		10-15	Qal
CT-84-3		03N08W24CBA	MONITORING	13.0	10.0	4-PVC	SCH. 40		5-10	Qal
DW-120		T03N R08W S25 AAB	DOMESTIC	80.0	80.0	6-STEEL	.250			Qal
DW-127		03N08W23BCD	MONITORING	0.0	0.0	4-PVC	SCH. 40			Qal
DW-128		03N08W23B8C	DOMESTIC	65.0	65.0	6-STEEL	SCH. 40		35-65	Tqm
DW-129		03N08W22D8B	DOMESTIC	80.0	80.0	6-STEEL	SCH. 40		40-80	Tqm
DW-131		03N08W24BDD	INDUSTRIAL	35.0	35.0	6-STEEL	SCH. 40		28-33	Qal
DW-132		03N08W23DAD	INDUSTRIAL	24.0	24.0	48				Qal
MF-01		03N08W25AAB	MONITORING	12.1	0.0	4-PVC	SCH. 40			Qal
MF-02		03N08W24DAC	MONITORING	0.0	0.0	4-PVC	SCH. 40			Qal
MF-03		03N08W24DAA	MONITORING	18.0	18.0	4-PVC	SCH. 40			Qal
MF-04		03N07W19BCC	MONITORING	28.0	26.0	4-PVC	SCH. 40			Qal
MF-05		03N07W19BAC	MONITORING	23.0	17.0	4-PVC	SCH. 40			Qal
MF-06		03N07W19BAD	MONITORING	23.0	18.0	4-PVC	SCH. 40			Qal
MF-07		03N07W19BDA	MONITORING	18.0	12.0	4-PVC	SCH. 40			Qal
MF-08		03N07W19BCC	MONITORING	18.0	14.0	4-PVC	SCH. 40			Qal
MF-09		03N07W19C8A	MONITORING	18.0	16.0	4-PVC	SCH. 40			Qal
MF-10		03N07W19C8B	MONITORING	23.0	17.0	4-PVC	SCH. 40			Qal
MF-11		03N07W19BDC	MONITORING	15.5	18.0	4-PVC	SCH. 40			Qal
MF-12		03N08W24C8C	MONITORING	43.0	29.0	4-PVC	SCH. 40	6	14-29	Qal
MF-13	MP-05	03N08W24C8C	MONITORING	48.0	37.0	4-PVC	SCH. 40	6	16-31	Tqm
MF-14	MP-01	03N08W23DAD	MONITORING	53.0	37.0	4-PVC	SCH. 40		17-37	Qal
MP&T 85-01		03N08W23DAD	MONITORING	20.0	20.0	4-PVC	SCH. 40	7.5	3-20	Qal
MP&T 85-02		03N08W23DAD	MONITORING	25.0	25.0	4-PVC	SCH. 40	7.5	5-25	Qal
MP&T 85-03		03N08W24C8C	MONITORING	37.0	20.0	4-PVC	SCH. 40	7.5	5-20	Qal
MP&T 85-06		03N08W24C8C	MONITORING	25.0	25.0	4-PVC	SCH. 40	7.5	5-25	Qal
MP&T 85-07		03N08W23D0A	MONITORING	28.0	28.0	4-PVC	SCH. 40	7.5	11-28	Qal
MP&T 85-08		03N08W23D0A	MONITORING	26.0	25.0	4-PVC	SCH. 40	7.5	4.5-25	Qal
MP&T 85-09		03N08W23D0A	MONITORING	26.0	26.0	4-PVC	SCH. 40	7.5	12-26	Qal
MP&T 85-15		03N08W23CCC	MONITORING	32.0	30.0	4-PVC	SCH. 40	7.5	12-30	Qal
MP&T 85-17		03N08W24CCC	MONITORING	22.0	22.0	4-PVC	SCH. 40	7.5	12-22	Qal
MP-01A		03N08W23DAD	MONITORING	0.0	13.0	4-PVC	SCH. 40		7-13	Qal
MP-02		03N08W23DAD	MONITORING	0.0	13.0	4-PVC	SCH. 40		8-13	Qal
MP-04		03N08W23DAD	MONITORING	0.0	33.0	4-PVC	SCH. 40		23-33	Qal
MP-06		03N08W23DAD	MONITORING	0.0	22.0	4-PVC	SCH. 40		12-22	Qal
MP-06A		03N08W23DAD	MONITORING	0.0	13.0	4-PVC	SCH. 40		8-13	Qal
MP-07		03N08W24CCB	MONITORING	18.0	16.0	4-PVC	SCH. 40	6	6-16	Qal
NE-2		03N08W23ACD	MONITORING	0.0	20.0	4-PVC	SCH. 40		15-20	Qal
S-01		03N08W23D0A	MONITORING	21.7	17.0	4-PVC	SCH. 40		12-17	Qal
S-05		03N08W23CAD	MONITORING	18.7	18.7	4-PVC	SCH. 40			Qal
S-1		03N08W23DAD	MONITORING	21.7	17.0	4-PVC	SCH. 40		12-17	Qal

Notes on screen or perforation methods: 1. Open bottom only. 2. Slotted with Mill's Knife. 3. Slotted with a torch. 4. Saw cut.

Notes on probable aquifer: Qal = Quaternary Alluvium, Iv = Tertiary volcanics, Tqm = Tertiary Quartz Monzonite, Ts = Tertiary Sediments,

General Note: Blanks indicate that data are unknown or not applicable.

Revision level: FINAL

Static Water Level

Measuring Point Elevation

Well Number	Date Measured	(ft)	Measuring Point (MP) Description	MP Height From G.S. (ft)	Measuring Point Elevation		Date Well Completed	Drilling Company	Drilling Method
					(ft)	Determined From			
CT-84-1	12/11/85	12.3	TOP OF PVC	3.9	5440.50	SURV	/ /84	MBMG	AUGER
CT-84-2	12/12/85	4.9	TOP OF PVC	1.9	5435.00	SURV	/ /84	MBMG	AUGER
CT-84-3	12/12/85	3.3	TOP OF PVC	1.0	5433.50	SURV	/ /84	MBMG	AUGER
DW-120	12/19/84	8.1	TOP OF STEEL	0.7	5454.90	SURV	04/30/83	DYNAMITE	CABLE TOOL
DW-127	01/18/85	6.6	CASING TOP	1.5	5418.90	SURV	/ /		
DW-128	09/83	25.0	CASING TOP	1.5	5501.00	TOPO MAP	09/19/83	O'KEEFE	CABLE TOOL
DW-129	01/07/85	15.0	CASING TOP	0.6	5506.00	TOPO MAP	/ /	O'KEEFE	CABLE TOOL
DW-131	01/08/86	12.0	TOP OF STEEL	2.0	5447.90	SURV	11/10/82	O'KEEFE	CABLE TOOL
DW-132	12/11/85	6.0	TOP OF CONCRETE	1.0	5432.00	SURV	/ /		
MF-01	03/28/85	3.5	CASING TOP	0.0	5443.10	SURV	07/83/	MBMG	AUGER
MF-02	03/28/85	13.5	WOODEN PLATFORM	0.0	5453.00	SURV	07/01/83	MBMG	AUGER
MF-03	12/06/85	4.8	WOODEN PLATFORM	0.0	5446.00	SURV	07/01/83	MBMG	AUGER
MF-04	03/28/85	14.3	WOODEN PLATFORM	0.5	5459.70	SURV	07/01/83	MBMG	AUGER
MF-05	12/06/85	13.1	WOODEN PLATFORM	0.0	5466.00	SURV	07/01/83	MBMG	AUGER
MF-06	03/28/85	12.0	WOODEN PLATFORM	0.9	5465.10	SURV	07/83/	MBMG	AUGER
MF-07	03/28/85	7.2	WOODEN PLATFORM	0.4	5458.00	SURV	07/01/83	MBMG	AUGER
MF-08	03/28/85	3.3	WOODEN PLATFORM	0.0	5448.00	SURV	07/01/83	MBMG	AUGER
MF-09	03/28/85	9.1	WOODEN PLATFORM	-0.4	5456.30	SURV	07/01/83	MBMG	AUGER
MF-10	03/28/85	6.5	WOODEN PLATFORM	0.2	5451.00	SURV	07/01/83	MBMG	AUGER
MF-11	03/28/85	7.0	WOODEN PLATFORM	0.2	5457.80	SURV	07/01/83	MBMG	AUGER
MF-12	01/18/85	41.0	CASING TOP	1.0	5457.10	SURV	07/06/83	MBMG	AUGER
MF-13	01/18/85	9.2	CASING TOP	2.2	5439.00	SURV	07/07/83	MBMG	
MF-14	01/18/85	6.6	CASING TOP	-0.3	5438.00	SURV	07/06/83	MBMG	AUGER
MP&T 85-01	08/19/85	5.8	TOP OF STEEL	1.3	5435.60	SURV	08/06/85	O'KEEFE	AIR ROTARY
MP&T 85-02	08/19/85	5.7	TOP OF STEEL	0.2	5432.40	SURV	08/06/85	O'KEEFE	AIR ROTARY
MP&T 85-03	8/19/85	7.1	TOP OF STEEL	0.0	5435.40	SURV	08/03/85	O'KEEFE	AIR ROTARY
MP&T 85-06	08/19/85	7.6	TOP OF STEEL	1.4	5435.30	SURV	09/08/85	O'KEEFE	AIR ROTARY
MP&T 85-07	08/19/84	13.1	TOP OF STEEL	0.7	54430.50	SURV	08/06/85	O'KEEFE	AIR ROTARY
MP&T 85-08	08/19/85	7.6	TOP OF STEEL	0.7	5435.30	SURV	08/06/85	O'KEEFE	AIR ROTARY
MP&T 85-09	08/19/85	13.1	TOP OF STEEL	0.7	5447.10	SURV	08/08/85	O'KEEFE	AIR ROTARY
MP&T 85-15	08/19/89	15.3	TOP OF STEEL	0.9	5448.80	SURV	08/12/85	O'KEEFE	AIR ROTARY
MP&T 85-17	08/19/85	0.0	TOP OF STEEL	1.5	5461.10	SURV	08/12/85	O'KEEFE	AIR ROTARY
MP-01A	01/18/85	0.0	CASING TOP	0.0	5439.00	SURV	07/06/83	MBMG	
MP-02	01/18/85	6.8	CASING TOP	0.5	5437.00	SURV	07/06/83	MBMG	
MP-04	01/18/85	4.9	CASING TOP	0.0	5434.00	SURV	07/06/83	MBMG	
MP-06	01/18/85	7.3	CASING TOP	-0.4	5434.00	SURV	07/07/83	MBMG	
MP-06A	01/18/85	7.7	CASING TOP	-0.5	5438.00	SURV	07/07/83	MBMG	
MP-07	03/06/85	3.6	CASING TOP	-0.4	0.00		07/07/83	MBMG	CORED
NE-2	04/22/85	13.7	CASING TOP	2.8	5435.10	SURV	/ /	MBMG	AUGER
S-01	12/11/85	9.2	TOP OF PVC	2.1	5438.90	SURV	07/85/	MBMG	AIR ROTARY
S-05	12/11/85	13.0	TOP OF PVC	3.7	5436.80	SURV	/ /	MBMG	
S-1	01/18/85	9.1	CASING TOP	1.9	5438.90	SURV	07/07/83	MBMG	

NOTES: 1) Blanks indicate data not known or not applicable.

2) An "##" indicates that the elevation is based on a datum established by AMC rather than by USGS.

05/08/90

Revision level: FINAL

Well Number	Well Test- Pumped?	Water Samples Taken?	Last Water Sample Date	Material Samples Taken?	Type of Pump	Reported Well Yield (gpm)	Well Owner	Owner's Phone No.
CT-84-1		YES	1985	NO	NONE		DSL	
CT-84-2		YES	1985	NO	NONE		DSL	
CT-84-3		YES	1985	NO	NONE		DSL	
DW-120		NO		NO	SUBMERSIBLE		WULF	723-4238
DW-127		NO		NO	NONE		DSL	
DW-128		YES	1985	NO	NONE	15	HAUMBERGER	UNKNOWN
DW-129		YES	1985	NO	SUBMERSIBLE	15	DUPUIS	
DW-131		YES	1985	NO	SUBMERSIBLE		ERICKSON	782-5570
DW-132		YES	1985	NO	SUBMERSIBLE		BUTTE CITY STP	723-8662
MF-01		YES	1985	NO	NONE		MBMG	496-4157
MF-02		YES	1985	NO	NONE		MBMG	496-4157
MF-03		YES	1985	NO	NONE		MBMG	496-4157
MF-04		YES	1985	NO	NONE		MBMG	496-4157
MF-05		YES	1985	NO	NONE		MBMG	496-4157
MF-06		YES	1985	NO	NONE		MBMG	496-4157
MF-07		YES	1985	NO	NONE		MBMG	496-4157
MF-08		YES	1985	NO	NONE		MBMG	496-4157
MF-09		YES	1985	NO	NONE		MBMG	496-4157
MF-10		YES	1985	NO	NONE		MBMG	496-4157
MF-11		YES	1985	NO	NONE		MBMG	496-4157
MF-12		YES	1985	NO	NONE		MBMG	496-4157
MF-13		YES	1985	NO	NONE	NONE	MBMG	496-4157
MF-14		YES	1985	NO	NONE		MBMG	496-4157
MP&T 85-01	NO	NO		NO	NONE		EPA	
MP&T 85-02	NO	NO		NO	NONE		EPA	
MP&T 85-03	NO	NO		NO	NONE		EPA	
MP&T 85-06	NO	NO		NO	NONE		EPA	
MP&T 85-07	NO	NO		NO	NONE		EPA	
MP&T 85-08	NO	NO		NO	NONE		EPA	
MP&T 85-09	NO	NO		NO	NONE		EPA	
MP&T 85-15	NO	NO		NO	NONE		EPA	
MP&T 85-17	NO	NO		NO	NONE		EPA	
MP-01A		NO		NO	NONE		MBMG	496-4157
MP-02		NO		NO	NONE		MBMG	496-4157
MP-04		NO		NO	NONE		MBMG	496-4157
MP-06		NO		NO	NONE		MBMG	496-4157
MP-06A		NO		NO	NONE		MBMG	496-4157
MP-07		YES	1985	NO	NONE		MBMG	496-4157
NE-2		YES	1985	NO	NONE		MBMG	496-4157
S-01		YES	1985	NO	NONE		MBMG	496-4157
S-05		YES	1985	NO	NONE		MBMG	496-4157
S-1		NO		NO	NONE	NONE	MBMG	496-4157

NOTE: Blanks indicate data not known or not applicable.

Revision level: FINAL

05/08/90

Page 4 of 4
Set 3Source of
Inventory
Information
(see footnote)

Well Number	Remarks
CT-84-1	
CT-84-2	
CT-84-3	
DW-120	
DW-127	NO LOG
DW-128	
DW-129	
DW-131	
DW-132	
MF-01	
MF-02	NO LOG
MF-03	
MF-04	
MF-05	
MF-06	
MF-07	
MF-08	
MF-09	
MF-10	
MF-11	
MF-12	
MF-13	
MF-14	
MP&T 85-01	
MP&T 85-02	
MP&T 85-03	
MP&T 85-06	
MP&T 85-07	
MP&T 85-08	
MP&T 85-09	
MP&T 85-15	
MP&T 85-17	DRY
MP-01A	
MP-02	
MP-04	
MP-06	
MP-06A	
MP-07	
NE-2	
S-01	
S-05	
S-1	

NOTE: Source abbreviations: AMC = Anaconda Minerals Company, CNI = Chen-Northern, Inc., DNRC = Montana Department of Natural Resources and Conservation, DSL = Montana Department of State Lands, EPA = U. S. Environmental Protection Agency, MBMG = Montana Bureau of Mines and Geology, MDHES = Montana Department of Health and Environmental Sciences.

APPENDIX B-4

Groundwater Quality Data

Sample I.D.	Sample Type	Sample Date	Sample Time	EPA Tag Numbers	Sample Method	pH (s.u.)	Specific Conductance (umhos/cm)	Eh (mV)
AI-DW-01	N	08/25/89	1200	8-93546, 8-93545	GRAB	5.7	1030	-40
AI-DW-01	N	11/06/89	1540	8-21964, 8-21963	GRAB	3.4	1237	260
AI-DW-02	N	08/25/89	1230	8-93549, 8-93548	GRAB	6.4	576	30
AI-DW-02	N	11/14/89	1430	8-86588, 8-86587	GRAB	6.8	565	180
AI-DW-03	N	11/15/89	0830	8-21695, 8-21694	GRAB	6.9	372	75
AI-GW-GS-07	N	08/24/89	0930	8-93948, 8-93947	GRAB	5.5	3021	
AI-GW-GS-07	N	11/06/89	1245	8-21952, 8-21951	GRAB	5.5	2693	255
AI-GW-GS-08	N	08/24/89	1130	8-93507, 8-93506	GRAB	6.6	1211	-300
AI-GW-GS-08	N	11/07/89	1300	8-94005, 8-94004	GRAB	6.2	2429	265
AI-GW-GS-09	N	08/24/89	1030	8-93501, 8-93500	GRAB	5.8	2616	-90
AI-GW-GS-09	N	11/07/89	0940	8-21994, 8-21993, 8-79376	GRAB	6.0	2672	230
AI-GW-GS-100	N	08/16/89	1400	8-93979, 8-93978	GRAB	5.5	3049	
AI-GW-GS-100	N	11/08/89	1030	8-94029, 8-94028	GRAB	4.9	3356	185
AI-GW-GS-10S	N	08/16/89	1500	8-93982, 8-93981	GRAB	5.2	2050	
AI-GW-GS-10S	N	11/08/89	1050	8-94035, 8-94034	GRAB	5.0	1947	220
AI-GW-GS-11	N	08/23/89	1630	8-93933, 8-93932	GRAB	6.1	1940	
AI-GW-GS-11	N	11/07/89	1430	8-94008, 8-94007	GRAB	6.4	1212	190
AI-GW-GS-12	N	08/25/89	1630	8-93561, 8-93560	GRAB	7.1	578	60
AI-GW-GS-12	N	11/13/89	1540	8-86564, 8-86563	GRAB	6.7	451	180
AI-GW-GS-13A	N	08/25/89	1030	8-93528, 8-93527	GRAB	6.6	1313	-70
AI-GW-GS-13B	N	11/13/89	1305	8-86555, 8-86554	GRAB	6.6	1575	150
AI-GW-GS-14	N	08/25/89	1715	8-93564, 8-93563	GRAB	6.5	1700	80
AI-GW-GS-14	N	11/09/89	1035	8-94079, 8-94078	GRAB			
AI-GW-GS-150	N	08/25/89	1530	8-93555, 8-93554	GRAB	7.4	405	50
AI-GW-GS-150	N	11/09/89	1615	8-78572, 8-78571	GRAB	7.1	549	90
AI-GW-GS-15S	N	08/25/89	1600	8-93558, 8-93557	GRAB	6.3	473	120
AI-GW-GS-15S	N	11/09/89	1630	8-78575, 8-78574	GRAB	7.0	508	90
AI-GW-GS-16	N	08/25/89	1000	8-93525, 8-93524	GRAB	6.6	769	-80
AI-GW-GS-16	N	11/13/89	1315	8-87543, 8-87988	GRAB	5.8	905	190
AI-GW-GS-170	N	08/22/89	0900	8-93888, 8-93887	GRAB	6.7	752	140
AI-GW-GS-170	R	08/22/89	0915	8-93891, 8-93890	GRAB			
AI-GW-GS-170	BB	08/22/89	1000	8-93894, 8-93893	GRAB			
AI-GW-GS-170	WB	08/22/89	1015	8-93897, 8-93896	GRAB			
AI-GW-GS-170	BFS	08/22/89	1030	8-93567, 8-93566	GRAB			

NOTES: 1) Units are ug/L unless otherwise noted.
 2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
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 4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS:

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Chromium (Hexavalent)
AI-DW-01	N	08/25/89	1200	946.0	40.0 U	2.5 BNSJ	20.0 BEJ	6.6	245.0	156000	2.8 U	
AI-DW-01	N	11/06/89	1540	1200.0	19.0 U	3.0 U	19.0 B	2.8	380.0	140000 EJ	32.0 J	
AI-DW-02	N	08/25/89	1230	11.5 U	19.9 U	0.6 UNJ	34.3 BEJ	1.7	1.2 J	78400	2.8 U	
AI-DW-02	N	11/14/89	1430	230.0 EJ	19.0 U	3.0 UN	35.0 B	1.0 U	1.0 J	59000	8.0 U	
AI-DW-03	N	11/15/89	0830	170.0 BJ	19.0 U	3.0 U	110.0 B	1.0 U	0.8 EJ	62000	8.0 U	
AI-GW-GS-07	N	08/24/89	0930	72.8 B	40.0 U	0.6 USDJ	7.6 BEJ	2.5	135.0	468000	2.8 UJ	
AI-GW-GS-07	N	11/06/89	1245	320.0 J	19.0 U	3.0 U	12.0 U	1.0 U	93.0	470000 EJ	21.0 J	
AI-GW-GS-08	N	08/24/89	1130	11.5 U	40.0 U	3.7 WDJ	13.4 BEJ	2.5	7.0 J	176000	2.8 UJ	
AI-GW-GS-08	N	11/07/89	1300	82.0 BJ	19.0 U	3.0 U	17.0 B	1.0 U	360.0	140000 J	8.0 UJ	
AI-GW-GS-09	N	08/24/89	1030	11.5 U	40.0 U	0.6 USDJ	20.0 BEJ	4.9	83.9	536000	15.6 J	
AI-GW-GS-09	N	11/07/89	0940	250.0 J	19.0 U	3.0 U	30.0 B	1.0 B	48.0	510000 EJ	8.0 UJ	
AI-GW-GS-100	N	08/16/89	1400	574.0	40.0 U	0.7 BNSJ	27.5 B	1.0 U	204.0	486000	2.8 U	
AI-GW-GS-100	N	11/08/89	1030	170.0 BJ	19.0 U	3.0 UNJ	16.0 B	1.0 U	170.0	410000 EJ	95.0	
AI-GW-GS-10S	N	08/16/89	1500	1920.0	40.0 U	9.3 NLJ	21.0 B	1.0 U	246.0	325000	2.8 U	
AI-GW-GS-10S	N	11/08/89	1050	1300.0	19.0 U	7.5	21.0 B	1.4	260.0	320000 EJ	22.0 J	
AI-GW-GS-11	N	08/23/89	1630	41.8 B	40.0 U	0.6 UNJ	13.0 B	1.6 B	210.0	279000	2.8 UJ	
AI-GW-GS-11	N	11/07/89	1430	100.0 BJ	19.0 U	4.8	16.0 B	1.0 U	260.0	360000 J	22.0 J	
AI-GW-GS-12	N	08/25/89	1630	11.6 B	19.9 U	4.2 BWNJ	26.7 BEJ	1.7	18.3	74100	2.8 U	
AI-GW-GS-12	N	11/13/89	1540	270.0 EJ	19.0 U	4.0 UNJ	30.0 B	1.0 U	12.0 J	62000	14.0	
AI-GW-GS-13A	N	08/25/89	1030	15.6 B	40.0 U	4.8 WDJ	27.2 BEJ	1.0 U	42.0	233000	2.8 UJ	
AI-GW-GS-13B	N	11/13/89	1305	180.0 BE	19.0 U	3.0 UN	35.0 B	1.0 U	1.5 J	140000	8.0 U	
AI-GW-GS-14	N	08/25/89	1715	11.5 U	19.9 U	33.4 NJ	41.0 BEJ	5.0	10.8	243000	2.8 U	
AI-GW-GS-14	N	11/09/89	1035	260.0 J	19.0 U	7.9 WJ	36.0 B	1.0 U	4.5	270000	8.0 U	
AI-GW-GS-150	N	08/25/89	1530	11.5 U	19.9 U	11.6 NJ	63.9 BEJ	1.7	5.3 J	52000	2.8 U	
AI-GW-GS-150	N	11/09/89	1615	76.0 BJ	19.0 U	9.5	63.0 B	1.0 U	4.2 SJ	43000	8.0 U	
AI-GW-GS-15S	N	08/25/89	1600	11.5 U	19.9 U	5.7 BNLJ	48.7 BEJ	1.7	6.9	56800	2.8 U	
AI-GW-GS-15S	N	11/09/89	1630	200.0 BJ	19.0 U	13.0	54.0 B	1.0 U	8.3	48000	8.0 U	
AI-GW-GS-16	N	08/25/89	1000	14.0 B	40.0 U	1.8 DMJ	30.8 BEJ	1.0 U	364.0	82400	2.8 UJ	
AI-GW-GS-16	N	11/13/89	1315	230.0 EJ	19.0 U	3.0 UN	38.0 B	1.0 U	430.0	64000	16.0	
AI-GW-GS-170	N	08/22/89	0900	11.5 U	40.0 U	4.6	21.9 B	1.0 U	9.8 J	84200	2.8 UJ	
AI-GW-GS-170	R	08/22/89	0915	11.5 U	40.0 U	2.0 B	21.9 B	1.0 U	5.1 SJ	78000	2.8 UJ	
AI-GW-GS-170	BB	08/22/89	1000	11.5 U	40.0 U	0.6 UW	2.0 B	1.0 U	2.2 BSJ	152 B	9.0 BJ	
AI-GW-GS-170	WB	08/22/89	1015	11.5 U	40.0 U	0.6 UW	3.0 B	1.0 U	0.5 BJ	82 B	2.8 UJ	
AI-GW-GS-170	BFS	08/22/89	1030	139.0 B	189.0	35.0 NSJ	123.0 BEJ	40.6	252.0	13 B	183.0	

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4) Blank values indicate parameters not determined or not reported.

DISSOLVED METALS: continued

NOTES:

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Revision Level: FINAL DISSOLVED METALS: continued

04/10/90

COMMON IONS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Chloride (mg/L)	Fluoride (mg/L)	Nitrate and Nitrite as N (mg/L)
AI-DW-01	N	08/25/89	1200	12.0 UNWJ	1.0 UNWJ	28500	2.0 UNMR	2.7 U	29100	15.2	2.18	0.05 U
AI-DW-01	N	11/06/89	1540	5.0 U	7.0	27000	750.0	6.0 B	36000	7.8	0.99	0.01 UUU
AI-DW-02	N	08/25/89	1230	1.2 UNWJ	1.0 UNWJ	21100	20.0 UNR	2.7 U	581	35.9	0.48	15.20
AI-DW-02	N	11/14/89	1430	5.0 UWJUJ	0.2 UNWDR	19000	9.0 U	6.0 U	490	17.0	0.28	15.10 NJ
AI-DW-03	N	11/15/89	0830	5.0 UNWJ	0.2 UNJ	18000 EJ	9.0 U	6.0 U	82	10.1	0.34	7.60 NJ
AI-GW-GS-07	N	08/24/89	0930	12.0 UNMR	1.0 UNWJ	181000	2.0 UNMR	2.7 U	29800	29.8	0.05 U	0.05 U
AI-GW-GS-07	N	11/06/89	1245	5.0 U	0.6 LJ	190000	370.0	6.0 U	31000	22.4	0.10 U	0.01 UUU
AI-GW-GS-08	N	08/24/89	1130	12.0 UNMR	1.0 UNWJ	97900	20.0 E	2.7 U	822	11.8	0.79	3.09
AI-GW-GS-08	N	11/07/89	1300	5.0 U	0.2 U	110000	9.0 U	7.0 B	720	33.6	0.10 U	0.01 UUU
AI-GW-GS-09	N	08/24/89	1030	12.0 UNMR	1.0 UNWJ	74600	20.0 UNMR	2.7 U	32200	22.9	1.60	1.01
AI-GW-GS-09	N	11/07/89	0940	5.0 U	0.2 U	100000	9.0 U	6.0 B	27000	16.9	0.10 U	0.97 J
AI-GW-GS-100	N	08/16/89	1400	12.0 UNJ	0.1 UW	67000 EJ	1.0 UW	2.7 U	73200	96.0	4.63	0.05 U
AI-GW-GS-100	N	11/08/89	1030	5.0 UNWJ	24.0	53000 EJ	2600.0	6.0 U	210000	15.0	0.10 U	0.23 J
AI-GW-GS-10S	N	08/16/89	1500	12.0 UNJ	1.0 U	56400 EJ	20.3 B	2.7 U	44100	27.4	3.63	0.16
AI-GW-GS-10S	N	11/08/89	1050	5.0 UNWJ	0.3 LJ	58000 EJ	310.0	6.0 U	57000	105.0	0.10 U	0.01 UUU
AI-GW-GS-11	N	08/23/89	1630	1.2 UNWJ	1.0 UNWJ	72700	20.0 UNR	4.1 B	46100	47.0	0.05 U	0.20
AI-GW-GS-11	N	11/07/89	1430	5.0 U	0.2 U	130000	610.0	11.0 B	72000	48.5	0.55	0.01 UUU
AI-GW-GS-12	N	08/25/89	1630	1.2 UNWJ	1.0 UNWJ	31600	20.0 UNR	6.7 B	1300	39.1	1.31	2.60
AI-GW-GS-12	N	11/13/89	1540	5.0 UWJUJ	0.2 UNWDR	29000	24.0	6.0 U	1200	25.6	1.10	2.40
AI-GW-GS-13A	N	08/25/89	1030	12.0 UNMR	1.0 UNWJ	18600	20.0 W	2.7 U	16600	25.6	3.07	0.28
AI-GW-GS-13B	N	11/13/89	1305	5.0 UNWJ	0.2 UNWDR	30000	110.0	7.0 B	360	21.9	0.96	3.60
AI-GW-GS-14	N	08/25/89	1715	12.0 UNJ	1.0 UNWJ	87000	20.0 UNMR	5.0 B	591	34.4	0.05 U	1.62
AI-GW-GS-14	N	11/09/89	1035	5.0 UEUJ	0.2 UNWJ	86000	9.0 U	8.0 B	420 NJ	29.0	0.10 U	0.99 J
AI-GW-GS-15D	N	08/25/89	1530	1.3 BN LJ	1.0 UNWJ	29600	20.0 UNR	6.6 B	345	37.0	0.97	4.50
AI-GW-GS-15D	N	11/09/89	1615	5.0 UNWJ	0.2 U	28000	9.0 U	8.0 B	310 NJ	27.4	0.84	4.60
AI-GW-GS-15S	N	08/25/89	1600	1.2 UNWJ	1.0 UNWJ	29400	20.0 UNMR	5.2 B	525 J	38.0	0.94	4.74
AI-GW-GS-15S	N	11/09/89	1630	5.0 UNWJ	0.2 UNWJ	26000	9.0 U	6.0 U	510 NJ	27.9	0.76	4.94
AI-GW-GS-16	N	08/25/89	1000	1.2 UNMR	1.0 UNWJ	32200	20.0 E	2.7 U	52000	40.9	5.16	2.85
AI-GW-GS-16	N	11/13/89	1315	5.0 UUU	0.3 NDJ	26000	160.0	6.0 U	66000	30.6	3.50	2.90
AI-GW-GS-17D	N	08/22/89	0900	1.2 UNJ	1.0 UNWJ	59600	20.0 UNR	2.7 U	1220	41.6	0.89	3.99
AI-GW-GS-17D	R	08/22/89	0915	1.3 BNWJ	1.0 UNW	52300	20.0 UNR	2.7 U	1080	41.6	0.89	3.93
AI-GW-GS-17D	BB	08/22/89	1000	1.8 BNJ	0.1 UNJ	1050 B	2.0 UNR	2.7 U	1 UJ	0.1 U	0.05 U	0.05 U
AI-GW-GS-17D	WB	08/22/89	1015	1.7 BNJ	0.1 UNWJ	905 B	2.0 UNR	4.0 B	16 BJ	0.1 U	0.05 U	0.05 U
AI-GW-GS-17D	BFS	08/22/89	1030	47.0 NJ	43.2	13 U	20.0 UNMR	220.0	234	435.0	19.00	0.06 R

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4) Blank values indicate parameters not determined or not reported.

04/10/90

Revision level: FINAL OTHER PARAMETERS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Hardness (mg/L) (5)	Comments
AI-DW-01	N	08/25/89	1200	184.0	2 U	571	
AI-DW-01	N	11/06/89	1540	834.0	10	510	
AI-DW-02	N	08/25/89	1230	155.0	68	275	
AI-DW-02	N	11/14/89	1430	152.0	83	217	
AI-DW-03	N	11/15/89	0830	57.9	160	212	
AI-GW-GS-07	N	08/24/89	0930	2414.0	13	1729	
AI-GW-GS-07	N	11/06/89	1245	2470.0	107	1709	
AI-GW-GS-08	N	08/24/89	1130	230.0	64	558	
AI-GW-GS-08	N	11/07/89	1300	1480.0	148	469	
AI-GW-GS-09	N	08/24/89	1030	2470.0	33	1870	
AI-GW-GS-09	N	11/07/89	0940	2720.0	39	1932	
AI-GW-GS-100	N	08/16/89	1400	2270.0	1 U	1918	
AI-GW-GS-100	N	11/08/89	1030	2980.0	3 UJJ	1683	
AI-GW-GS-10S	N	08/16/89	1500	3130.0	1 U	979	
AI-GW-GS-10S	N	11/08/89	1050	1550.0 J	3 UJJ	960	
AI-GW-GS-11	N	08/23/89	1630	1420.0	101	1021	
AI-GW-GS-11	N	11/07/89	1430	562.0	92	1352	
AI-GW-GS-12	N	08/25/89	1630	163.0	100	259	
AI-GW-GS-12	N	11/13/89	1540	486.0	111	221	
AI-GW-GS-13A	N	08/25/89	1030	706.0	158	730	
AI-GW-GS-13B	N	11/13/89	1305	721.0	197	506	
AI-GW-GS-14	N	08/25/89	1715	3550.0	2 U	853	
AI-GW-GS-14	N	11/09/89	1035	1410.0	75 J	942	
AI-GW-GS-150	N	08/25/89	1530	60.8	105	180	
AI-GW-GS-150	N	11/09/89	1615	48.8	136	157	
AI-GW-GS-15S	N	08/25/89	1600	67.5	110	195	
AI-GW-GS-15S	N	11/09/89	1630	55.4	148	169	
AI-GW-GS-16	N	08/25/89	1000	280.0	118	315	
AI-GW-GS-16	N	11/13/89	1315	345.0	126	287	
AI-GW-GS-170	N	08/22/89	0900	22.2	102	287	
AI-GW-GS-170	R	08/22/89	0915	22.2	103	264	
AI-GW-GS-170	BB	08/22/89	1000	0.1 U	8 J	1	
AI-GW-GS-170	WB	08/22/89	1015	0.1 U	2 J	0	
AI-GW-GS-170	BFS	08/22/89	1030	322.0	213	0	

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4) Blank values indicated parameters not determined or not reported.

5) Hardness calculated from concentrations of calcium and magnesium. [Hardness = $2.497 \cdot \text{Ca} + 4.118 \cdot \text{Mg}$]

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	EPA Tag Numbers	Sample Method	pH (s.u.)	Specific Conductance (umhos/cm)	Eh (mV)
AI-GW-GS-17D	N	11/13/89	1455	8-86558, 8-86557	GRAB	6.7	819	141
AI-GW-GS-17S	N	08/22/89	1100	8-93900, 8-93899	GRAB	4.6	1648	250
AI-GW-GS-17S	N	11/13/89	1450	8-86561, 8-86560	GRAB	4.3	1341	230
AI-GW-GS-18	N	08/25/89	0900	8-93522, 8-93521	GRAB	6.8	1272	20
AI-GW-GS-18	N	11/13/89	1410	8-86552, 8-86551	GRAB	6.2	961	200
AI-GW-GS-19	N	08/24/89	1830	8-93516, 8-93515	GRAB	6.4	704	100
AI-GW-GS-19	N	11/13/89	1255	8-87541, 8-87540	GRAB	6.3	675	175
AI-GW-GS-20	N	08/24/89	1730	8-93513, 8-93512	GRAB	6.6	464	80
AI-GW-GS-20	N	11/10/89	1050	8-78584, 8-78583	GRAB	7.1	564	140
AI-GW-GS-21D	N	08/25/89	1100	8-93531, 8-93530	GRAB	7.2	756	-30
AI-GW-GS-21D	R	08/25/89	1115	8-93534, 8-93533	GRAB			
AI-GW-GS-21D	BB	08/25/89	1130	8-93537, 8-93536	GRAB			
AI-GW-GS-21D	WB	08/25/89	1145	8-93540, 8-93539	GRAB			
AI-GW-GS-21D	BFS	08/25/89	1200	8-93570, 8-93569	GRAB			
AI-GW-GS-21D	N	11/09/89	1510	8-78569, 8-78568	GRAB	7.1	686	90
AI-GW-GS-21S	N	08/25/89	1300	8-93543, 8-93542	GRAB	7.0	665	30
AI-GW-GS-21S	N	11/09/89	1525	8-94099, 8-94073	GRAB	7.0	721	110
AI-GW-GS-22	N	08/25/89	1500	8-93552, 8-93551	GRAB	7.4	1126	-330
AI-GW-GS-22	N	11/13/89	1710	8-86567, 8-86566	GRAB	6.5	1024	160
AI-GW-GS-23	N	08/24/89	1530	8-93510, 8-93509	GRAB	7.3	704	-390
AI-GW-GS-23	N	11/14/89	0845	8-86570, 8-86569	GRAB	6.8	702	190
AI-GW-GS-24D	N	08/22/89	1215	8-93903, 8-93902	GRAB	6.5	955	-20
AI-GW-GS-24D	N	11/14/89	1500	8-86591, 8-86590	GRAB	6.0	807	150
AI-GW-GS-24D	R	11/14/89	1515	8-86594, 8-86593	GRAB	6.1	807	155
AI-GW-GS-24D	BB	11/14/89	1530	8-86597, 8-86596	GRAB			
AI-GW-GS-24D	WB	11/14/89	1545	8-86600, 8-86599	GRAB			
AI-GW-GS-24D	BFS	11/14/89	1600	8-87403, 8-87402	GRAB			
AI-GW-GS-24S	N	08/22/89	1315	8-93906, 8-93905	GRAB	6.5	2040	40
AI-GW-GS-24S	N	11/14/89	1310	8-86585, 8-86584	GRAB	6.4	1847	90
AI-GW-GS-25	N	08/24/89	0900	8-93945, 8-93944	GRAB	6.6	1100	-300
AI-GW-GS-25	N	11/14/89	0845	8-86573, 8-86572	GRAB	6.2	919	190
AI-GW-GS-26	N	08/22/89	1415	8-93909, 8-93908	GRAB	4.7	1962	200
AI-GW-GS-26	N	11/14/89	1140	8-86582, 8-86581	GRAB	5.0	1623	230
AI-GW-GS-27D	N	08/22/89	1515	8-93912, 8-93911	GRAB	6.3	2953	-20

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

APPENDIX B-4: continued

DISSOLVED METALS:

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium (Hexavalent)
AI-GW-GS-17D	N	11/13/89	1455	120.0 BE	19.0 U	5.5 NWJ	19.0 B	1.0 U	1.6 J	75000	8.0 U
AI-GW-GS-17S	N	08/22/89	1100	13500.0	40.0 U	2.7 B	9.0 B	8.1	937.0	134000	2.8 UJ
AI-GW-GS-17S	N	11/13/89	1450	9300.0 EJ	19.0 U	3.9 NJ	13.0 B	4.7	620.0	73000	43.0
AI-GW-GS-18	N	08/25/89	0900	11.5 U	40.0 U	2.8 DJ	27.7 BEJ	1.0 U	68.2	177000	2.8 UJ
AI-GW-GS-18	N	11/13/89	1410	100.0 BE	19.0 U	3.2 NWJ	36.0 B	1.0 U	35.0	93000	8.0 U
AI-GW-GS-19	N	08/24/89	1830	11.5 U	40.0 U	13.2 LDJ	26.7 BEJ	1.7	60.3	78900	2.8 UJ
AI-GW-GS-19	N	11/13/89	1255	92.0 BE	19.0 U	11.0 NJ	33.0 B	1.0 U	50.0	54000	11.0
AI-GW-GS-20	N	08/24/89	1730	11.5 U	40.0 U	1.7 DJ	17.2 BEJ	2.5	3.5 J	71200	2.8 UJ
AI-GW-GS-20	N	11/10/89	1050	170.0 BJ	19.0 U	3.0 UMWJ	17.0 B	1.0 U	5.2	67000	8.0 U
AI-GW-GS-21D	N	08/25/89	1100	11.5 U	40.0 U	6.6 WJ	56.2 BEJ	1.0 U	5.6 J	94100	2.8 UJ
AI-GW-GS-21D	R	08/25/89	1115	11.5 U	40.0 U	6.6 WJ	54.4 BEJ	1.0 U	5.3 J	92200	2.8 UJ
AI-GW-GS-21D	9B	08/25/89	1130	11.5 U	40.0 U	0.6 WJ	1.8 BEJ	1.0 U	1.0 J	31 B	2.8 UJ
AI-GW-GS-21D	WB	08/25/89	1145	11.5 U	40.0 U	0.6 UMDJ	1.8 UEJ	1.0 U	1.1 J	61 B	2.8 UJ
AI-GW-GS-21D	BFS	08/25/89	1200	138.0 B	175.0	43.8 NJ	121.0 BEJ	40.5	245.0	7 B	176.0
AI-GW-GS-21D	N	11/09/89	1510	170.0 BJ	19.0 U	11.0 S	55.0 B	1.0 U	3.5 J	74000	8.0 U
AI-GW-GS-21S	N	08/25/89	1300	15.0 B	40.0 U	19.1 SDJ	68.9 BEJ	1.0 U	9.5 B	92700	2.8 U
AI-GW-GS-21S	N	11/09/89	1525	210.0 J	19.0 U	23.0	82.0 B	1.0 U	6.4	71000	8.0 U
AI-GW-GS-22	N	08/25/89	1500	11.5 U	62.3	158.0 NJ	26.7 BEJ	1.7	2.4 J	152000	2.8 U
AI-GW-GS-22	N	11/13/89	1710	300.0 EJ	19.0 U	110.0 NLJ	29.0 B	1.0 U	3.7 J	100000	22.0
AI-GW-GS-23	N	08/24/89	1530	11.5 U	40.0 U	11.7 WJ	47.7 BEJ	1.7	0.6 J	110000	2.8 UJ
AI-GW-GS-23	N	11/14/89	0845	280.0 EJ	19.0 U	12.0 NSJ	52.0 B	1.0 U	0.5 J	76000	20.0
AI-GW-GS-24D	N	08/22/89	1215	11.5 U	40.0 U	1.4 B	30.9 B	1.0 U	17.9	73300	2.8 UJ
AI-GW-GS-24D	N	11/14/89	1500	180.0 BE	19.0 U	3.0 UN	41.0 B	1.0 U	30.0	56000	8.0 U
AI-GW-GS-24D	R	11/14/89	1515	230.0 EJ	19.0 U	3.0 UN	37.0 B	1.0 U	28.0	51000	13.0
AI-GW-GS-24D	BB	11/14/89	1530	240.0 J	19.0 U	3.0 U	12.0 U	1.0 U	0.6 EJ	160 U	8.0 U
AI-GW-GS-24D	WB	11/14/89	1545	240.0 J	19.0 U	3.0 U	12.0 U	1.0 U	2.6 LEJ	160 U	8.0 U
AI-GW-GS-24D	BFS	11/14/89	1600	220.0 J	130.0	39.0	140.0 B	34.0	230.0 EJ	1900 B	160.0
AI-GW-GS-24S	N	08/22/89	1315	28.5 B	40.0 U	802.0	36.9 B	1.6 B	13.2	200000	2.8 UJ
AI-GW-GS-24S	N	11/14/89	1310	130.0 BE	19.0 U	1210.0 NJ	33.0 B	1.0 U	4.3 SJ	240000	67.0
AI-GW-GS-25	N	08/24/89	0900	82.0 B	40.0 U	42.2 SDJ	30.5 BEJ	5.0	60.2	152000	2.8 UJ
AI-GW-GS-25	N	11/14/89	0845	210.0 EJ	19.0 U	40.0 NLJ	20.0 B	1.0 U	53.0	100000	12.0
AI-GW-GS-26	N	08/22/89	1415	3090.0	40.0 U	43.4	16.9 B	3.3 B	276.0	199000	2.8 UJ
AI-GW-GS-26	N	11/14/89	1140	2700.0 EJ	19.0 U	5.6 NWJ	24.0 B	2.7	240.0	160000	15.0
AI-GW-GS-27D	N	08/22/89	1515	11.5 U	40.0 U	223.0 S	63.8 B	1.6 B	0.7 BSJ	253000	2.8 UJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS: continued

Revision level: FINAL	Sample Type	Sample Date	Sample Time	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium
AI-GW-GS-17D	N	11/13/89	1455	23.0 B	13.0 B	49 BJ	0.4 UNWR	20000 EJ	310 EJ		2.0 UN	6600
AI-GW-GS-17S	N	08/22/89	1100	64.2	79400.0	320	3520.0	39200	98700	2.00	51.8	7790
AI-GW-GS-17S	N	11/13/89	1450	37.0 B	62000.0	220 J	2600.0 ND	28000 EJ	79000 EJ		33.0 N	7000
AI-GW-GS-18	N	08/25/89	0900	4.9 B	1220.0 EJ	12 BEJ	0.8 BWJ	28600	7860	0.20 U	9.9 S	4270 BEJ
AI-GW-GS-18	N	11/13/89	1410	30.0 B	790.0	82 BJ	0.4 UNDR	30000 EJ	3900 EJ		4.2 N	3900 B
AI-GW-GS-19	N	08/24/89	1830	2.6 U	748.0 EJ	26 BEJ	89.8 SJ	14700	4220	0.20 U	7.6 S	8210 EJ
AI-GW-GS-19	N	11/13/89	1255	12.0 U	720.0	52 BJ	110.0 ND	17000 EJ	4300 EJ		7.1 N	7100
AI-GW-GS-20	N	08/24/89	1730	2.6 U	1.1 UEJ	42 BEJ	0.5 UWJ	14600	25 J	0.20 U	1.1 UN	5883 EJ
AI-GW-GS-20	N	11/10/89	1050	20.0 B	6.0 UNJU	12 UJJ	0.4 UNUJ	21000 J	30 J		2.0 U	6800
AI-GW-GS-21D	N	08/25/89	1100	2.6 U	72.5 EJ	10 BEJ	5.3 SJ	22600	137	0.20 U	1.7 B	4920 BEJ
AI-GW-GS-21D	R	08/25/89	1115	2.6 U	57.0 EJ	11 BEJ	2.6 SJ	22200	146	0.20 U	3.2	5350 EJ
AI-GW-GS-21D	BB	08/25/89	1130	2.6 U	1.1 UEJ	4 UEJ	0.5 UJ	22 B	1 UJ	0.20 U	1.1 UN	273 UEJ
AI-GW-GS-21D	WB	08/25/89	1145	2.6 U	1.1 UEJ	6 BEJ	0.5 UJ	21 U	16 J	0.20 U	1.1 U	273 UEJ
AI-GW-GS-21D	BFS	08/25/89	1200	89.7	202.0 EJ	161	172.0 S	21 U	217 EJ	3.10	74.5	273 UEJ
AI-GW-GS-21D	N	11/09/89	1510	34.0 B	75.0 NJ	16 BJ	0.4 UNUJ	20000 J	34 J		2.0 U	5500
AI-GW-GS-21S	N	08/25/89	1300	2.6 U	562.0 EJ	16 BEJ	16.2	22700	2130	0.20 U	8.2 S	4880 BEJ
AI-GW-GS-21S	N	11/09/89	1525	14.0 B	390.0 NJ	12 UJJ	61.0 S	21000 J	2400		3.4	4400 B
AI-GW-GS-22	N	08/25/89	1500	2.6 U	10.0 BEJ	4 U	0.5 UM	36100	42 EJ	0.20 U	8.9 BNJ	14900 EJ
AI-GW-GS-22	N	11/13/89	1710	24.0 B	20.0 B	160 J	0.4 UNWR	28000 EJ	40 EJ	0.20 U	10.0 N	13000
AI-GW-GS-23	N	08/24/89	1530	2.7 B	1.1 UEJ	4 UEJ	0.5 UNWR	20300	9 BJ		1.1 U	2620 BEJ
AI-GW-GS-24D	N	08/22/89	1215	3.3 B	16.0 BJ	264	1.3 BJ	17800	14 BEJ	0.20 U	12.0 N	3600 B
AI-GW-GS-24D	N	11/14/89	1500	17.0 B	6.0 U	71 BJ	0.4 UNWR	16000 EJ	15000 EJ		4.7 N	9300
AI-GW-GS-24D	R	11/14/89	1515	12.0 U	6.0 U	33 BJ	0.4 UNWR	15000 EJ	13000 EJ		4.3 N	7700
AI-GW-GS-24D	BB	11/14/89	1530	12.0 U	6.0 UNUJ	30 BJ	0.4 UNUJ	1100 BEJ	6 U		2.0 U	600 U
AI-GW-GS-24D	WB	11/14/89	1545	12.0 U	6.0 UNUJ	31 BJ	0.7 BWJ	1100 BEJ	6 U		2.0 U	1100 B
AI-GW-GS-24D	BFS	11/14/89	1600	100.0	190.0 NJ	140 J	190.0 J	1800 BEJ	240		64.0	900 B
AI-GW-GS-24S	N	08/22/89	1315	7.7 B	18.2 B	4060	48.1	40300	105000	0.20 U	4.2 BNS	19200
AI-GW-GS-24S	N	11/14/89	1310	12.0 U	6.0 U	8700	83.0 ND	43000 EJ	100000 EJ		9.4 N	21000
AI-GW-GS-25	N	08/24/89	0900	2.6 U	140.0 EJ	110 EJ	0.5 UWJ	25400	14800	0.30	7.9 S	9920 EJ
AI-GW-GS-25	N	11/14/89	0845	18.0 B	61.0	98 BJ	0.4 UNWR	23000 EJ	7900 EJ		9.2 N	7600
AI-GW-GS-26	N	08/22/89	1415	91.9	17800.0	869000	259.0 SJ	41000	35600	0.20 U	81.6	8790
AI-GW-GS-26	N	11/14/89	1140	74.0	19000.0	72000	160.0 ND	40000 EJ	30000 EJ		41.0 N	7800
AI-GW-GS-27D	N	08/22/89	1515	8.2 B	10.2 BJ	132000	0.5 UWJ	66700	34500	0.20 U	6.7 BNL	13600

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = spike sample recovery was not within control addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90
COMMON IONS:

Revision level: FINAL DISSOLVED METALS: continued

Sample I.D.	Sample Type	Sample Date	Sample Time	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Chloride (mg/L)	Fluoride (mg/L)	Nitrate and Nitrite as N (mg/L)
AI-GW-GS-17D	N	11/13/89	1455	5.0 UJJ	0.4 NLDJ	78000	9.0 U	7.0 B	390	39.1	0.61	5.80
AI-GW-GS-17S	N	08/22/89	1100	2.4 BWNJ	1.0 UNEJ	32800	2.0 UNNR	2.7 U	220000	33.6	4.09	1.45
AI-GW-GS-17S	N	11/13/89	1450	5.0 UJJ	0.2 UNDR	29000	960.0	6.0 U	190000	22.9	1.10	2.00
AI-GW-GS-18	N	08/25/89	0900	12.5 NJ	1.0 UNNJ	38700	20.0 E	5.4 B	32800	25.8	0.88	2.28
AI-GW-GS-18	N	11/13/89	1410	5.0 UJJ	0.2 UNDR	32000	46.0	6.0 U	15000	18.6	0.10 U	1.80
AI-GW-GS-19	N	08/24/89	1830	1.2 UNNR	1.0 UNNJ	22500	20.0 E	2.7 U	14700	30.5	1.98	2.15
AI-GW-GS-19	N	11/13/89	1255	5.0 UJJ	0.2 UNDR	21000	68.0	10.0 B	13000	21.4	1.60	1.80
AI-GW-GS-20	N	08/24/89	1730	1.2 UNNR	1.0 UNNJ	23400	20.0 E	5.2 B	711	26.9	1.14	2.84
AI-GW-GS-20	N	11/10/89	1050	5.0 UJJ	0.2 U	27000	9.0 U	6.0 U	710 NJ	29.9	0.70	6.56
AI-GW-GS-21D	N	08/25/89	1100	1.2 UNNR	1.0 UNNJ	39500	20.0 E	2.7 U	502	60.6	0.87	8.92
AI-GW-GS-21D	R	08/25/89	1115	1.2 UNNR	1.0 UNNJ	40300	20.0 E	2.7 U	460	60.9	0.79	8.92
AI-GW-GS-21D	BB	08/25/89	1130	1.2 UNR	0.1 UNJ	13 U	2.0 UNNR	2.7 U	1 UJ	0.1 U	0.05 U	0.05 U
AI-GW-GS-21D	WB	08/25/89	1145	1.6 BNJ	0.1 UNJ	98 B	2.0 UNNR	2.7 U	12 BJ	0.1 U	0.05 U	0.05 U
AI-GW-GS-21D	BFS	08/25/89	1200	36.2 NSJ	46.2	79 B	20.0 UNNR	212.0	251	434.0	15.20	0.05 U R
AI-GW-GS-21D	N	11/09/89	1510	5.0 UJJ	0.2 UNJJ	36000	9.0 U	8.0 B	260 NJ	48.5	0.48	9.87
AI-GW-GS-21S	N	08/25/89	1300	1.3 BNJ	1.0 W	38200	20.0 E	2.7 U	1190	67.6	1.09	3.21
AI-GW-GS-21S	N	11/09/89	1525	5.0 UJJ	0.2 UNJJ	33000	26.0	6.0 U	630 NJ	53.5	0.80	2.71
AI-GW-GS-22	N	08/25/89	1500	12.0 UNJ	1.0 UNJ	86100	20.0 UNR	9.2 B	71	18.6	1.70	1.94
AI-GW-GS-22	N	11/13/89	1710	5.0 UJJ	0.4 NDJ	66000	23.0	11.0 B	320	12.6	2.00	1.90
AI-GW-GS-23	N	08/24/89	1530	1.2 UNNR	1.0 UNNJ	47500	20.0 E	9.2 B	30 J	11.7	0.80	3.12
AI-GW-GS-23	N	11/14/89	0845	5.0 UJJ	0.5 NDJ	48000	9.0 U	6.0 U	17 BJ	6.9	0.56	3.30
AI-GW-GS-24D	N	08/22/89	1215	1.2 UNNJ	1.0 UNNJ	107000	20.0 UNR	2.7 U	4340	43.8	1.35	1.82
AI-GW-GS-24D	N	11/14/89	1500	5.0 UJJ	0.4 NLDJ	67000	220.0	7.0 B	12000	32.8	1.14	1.66 NJ
AI-GW-GS-24D	R	11/14/89	1515	5.0 UJJ	0.2 UNDR	63000	180.0	6.0 U	12000	32.2	1.12	1.89 NJ
AI-GW-GS-24D	BB	11/14/89	1530	5.0 UN	0.2 UW	210 UEJ	9.0 U	7.0 B	11 BJ	0.5 U	0.10 U	0.01 UNJJ
AI-GW-GS-24D	WB	11/14/89	1545	5.0 UN	0.2 UW	210 UEJ	9.0 U	6.0 U	12 BJ	0.5 U	0.10 U	0.01 UNJJ
AI-GW-GS-24D	BFS	11/14/89	1600	74.0 LNJ	17.0 LJ	210 UEJ	57.0	190.0	220	316.0	12.20	4.98 NJ
AI-GW-GS-24S	N	08/22/89	1315	1.2 UNNJ	1.0 UNEJ	229000	20.0 UNR	2.7 U	13200	51.8	3.04	0.16
AI-GW-GS-24S	N	11/14/89	1310	5.0 UJJ	0.2 UNDR	310000	1400.0	6.0 U	11000	41.3	1.20	0.01 U
AI-GW-GS-25	N	08/24/89	0900	1.2 UNNR	1.0 UNNJ	51800	20.0 E	3.0 B	24000	37.4	5.04	0.49
AI-GW-GS-25	N	11/14/89	0845	5.0 UJJ	0.3 NLDJ	43000	210.0	6.0 U	25000	25.5	2.90	0.46
AI-GW-GS-26	N	08/22/89	1415	1.2 UNNJ	1.0 UNEJ	78700	2.0 UNNR	2.7 U	82900	55.0	3.30	0.17
AI-GW-GS-26	N	11/14/89	1140	5.0 UJJ	0.2 UNLDR	77000	350.0	6.0 U	77000	41.4	1.00	0.01 U
AI-GW-GS-27D	N	08/22/89	1515	12.0 UNNJ	1.0 UNEJ	294000	20.0 UNR	2.7 U	1200	671.0	3.96	0.05 U

NOTES: 1) Units are ug/L unless otherwise noted.

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3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

Revision level: FINAL OTHER PARAMETERS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Hardness (mg/L) (5)	Comments
AI-GW-GS-17D	N	11/13/89	1455	272.0	126	270	
AI-GW-GS-17S	N	08/22/89	1100	1592.0	2 U J	496	
AI-GW-GS-17S	N	11/13/89	1450	910.0	3 UJJ	298	
AI-GW-GS-18	N	08/25/89	0900	541.0	162	560	
AI-GW-GS-18	N	11/13/89	1410	413.0	177	356	
AI-GW-GS-19	N	08/24/89	1830	228.0	76	258	
AI-GW-GS-19	N	11/13/89	1255	234.0	93	205	
AI-GW-GS-20	N	08/24/89	1730	149.0	101	238	
AI-GW-GS-20	N	11/10/89	1050	220.0	133	254	
AI-GW-GS-21D	N	08/25/89	1100	127.0	141	328	
AI-GW-GS-21D	R	08/25/89	1115	127.0	141	322	
AI-GW-GS-21D	BB	08/25/89	1130	0.1 U	2 U	0	
AI-GW-GS-21D	WB	08/25/89	1145	0.1 U	2	0	
AI-GW-GS-21D	BFS	08/25/89	1200	328.0	212	0	
AI-GW-GS-21D	N	11/09/89	1510	115.0	165	267	
AI-GW-GS-21S	N	08/25/89	1300	149.0	149	325	
AI-GW-GS-21S	N	11/09/89	1525	146.0	196	264	
AI-GW-GS-22	N	08/25/89	1500	422.0	221	528	
AI-GW-GS-22	N	11/13/89	1710	359.0	303	365	
AI-GW-GS-23	N	08/24/89	1530	231.0	182	358	
AI-GW-GS-23	N	11/14/89	0845	220.0	197	272	
AI-GW-GS-24D	N	08/22/89	1215	324.0	93	256	
AI-GW-GS-24D	N	11/14/89	1500	358.0	114	206	
AI-GW-GS-24D	R	11/14/89	1515	348.0	102	189	
AI-GW-GS-24D	BB	11/14/89	1530	0.5 U	10 J	5	
AI-GW-GS-24D	WB	11/14/89	1545	0.5 U	3 UJJ	5	
AI-GW-GS-24D	BFS	11/14/89	1600	361.0	250	444	
AI-GW-GS-24S	N	08/22/89	1315	1280.0	159	665	
AI-GW-GS-24S	N	11/14/89	1310	1260.0	222	776	
AI-GW-GS-25	N	08/24/89	0900	480.0	109	484	
AI-GW-GS-25	N	11/14/89	0845	380.0	101	344	
AI-GW-GS-26	N	08/22/89	1415	1300.0	2 U J	666	
AI-GW-GS-26	N	11/14/89	1140	1100.0	3 UJJ	564	
AI-GW-GS-27D	N	08/22/89	1515	515.0	146	906	

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4) Blank values indicate parameters not determined or not reported.

5) Hardness calculated from concentrations of calcium and magnesium. [Hardness = 2.497*Ca + 4.118*Mg]

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	EPA Tag Numbers	Sample Method	pH (s.u.)	Specific Conductance (umhos/cm)	Eh (mV)
AI-GW-GS-27D	N	11/15/89	0950	8-21698, 8-21697	GRAB	6.1	2726	-30
AI-GW-GS-27S	N	08/22/89	1600	8-93915, 8-93914	GRAB	6.4	2953	-30
AI-GW-GS-27S	N	11/15/89	0940	8-78986, 8-78985	GRAB	6.8	2792	-25
AI-GW-GS-28	N	08/23/89	1715	8-93936, 8-93935	GRAB	5.9	1312	-300
AI-GW-GS-28	N	11/09/89	1250	8-94091, 8-94090	GRAB	6.6	1174	150
AI-GW-GS-29D	N	08/23/89	1815	8-93939, 8-93938	GRAB	7.1	1212	-320
AI-GW-GS-29D	N	11/09/89	1210	8-94088, 8-94087	GRAB	7.2	849	145
AI-GW-GS-29S	N	08/23/89	1915	8-93942, 8-93941	GRAB	6.6	1388	-180
AI-GW-GS-29S	N	11/09/89	1230	8-94085, 8-94084	GRAB	6.6	1474	150
AI-GW-GS-30D	N	08/18/89	0900	8-93873, 8-93872	GRAB	6.3	3438	40
AI-GW-GS-30D	N	11/07/89	0915	8-21982, 8-21981	GRAB	6.7	3390	
AI-GW-GS-30D	R	11/07/89	0930	8-21985, 8-21984	GRAB	6.5	3374	
AI-GW-GS-30D	WB	11/07/89	0945	8-21988, 8-21987	GRAB			
AI-GW-GS-30D	BB	11/07/89	1000	8-21991, 8-21990	GRAB			
AI-GW-GS-30D	BFS	11/07/89	1100	8-21997, 8-21996	GRAB			
AI-GW-GS-30S	N	08/18/89	1000	8-93876, 8-93875	GRAB	6.4	1965	30
AI-GW-GS-30S	BFS	08/18/89	1015	8-93879, 8-93878	GRAB			
AI-GW-GS-30S	N	11/07/89	0950	8-94002, 8-94001, 8-79380	GRAB	6.1	1416	120
AI-GW-GS-31D	N	08/23/89	1230	8-93927, 8-93926	GRAB	6.0	1267	190
AI-GW-GS-31D	N	11/08/89	1150	8-94038, 8-94037	GRAB	5.7	1454	150
AI-GW-GS-31S	N	08/23/89	1330	8-93930, 8-93929	GRAB	6.5	894	150
AI-GW-GS-31S	N	11/08/89	1205	8-94044, 8-94043	GRAB	6.4	4525	90
AI-GW-GS-32	N	08/23/89	0930	8-93924, 8-93923	GRAB	6.1	2453	190
AI-GW-GS-32	N	11/08/89	1620	8-94076, 8-94075	GRAB	5.8	2478	135
AI-GW-GS-33	N	08/17/89	1815	8-93870, 8-93869	GRAB	7.0	1775	160
AI-GW-GS-33	N	11/08/89	1410	8-94050, 8-94049	GRAB	6.4	1505	95
AI-GW-GS-34D	N	08/22/89	1730	8-93918, 8-93917	GRAB	6.2	1012	150
AI-GW-GS-34D	N	11/14/89	1110	8-86579, 8-86578	GRAB	6.3	983	190
AI-GW-GS-34S	N	08/22/89	1800	8-93921, 8-93920	GRAB	5.6	1280	150
AI-GW-GS-34S	N	11/14/89	0920	8-86576, 8-86575	GRAB	5.3	1232	190
AI-GW-GS-35D	N	08/17/89	1400	8-93864, 8-93863	GRAB	6.4	1898	180
AI-GW-GS-35D	N	11/08/89	1315	8-94053, 8-94052	GRAB	6.3	1090	145
AI-GW-GS-35S	N	08/17/89	1530	8-93867, 8-93866	GRAB	6.1	1310	180
AI-GW-GS-35S	N	11/08/89	1350	8-94072, 8-94071	GRAB	5.9	974	150

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4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS:

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Chromium (Hexavalent)
AI-GW-GS-270	N	11/15/89	0950	300.0 J	19.0 U	190.0 LJ	61.0 B	1.0 U	1.2 EJ	240000	8.0 U	
AI-GW-GS-275	N	08/22/89	1600	11.5 U	40.0 U	146.0	54.8 B	1.0 U	0.3 J	199000	2.8 UJ	
AI-GW-GS-275	N	11/15/89	0940	220.0 J	19.0 U	180.0 LJ	64.0 B	1.0 U	1.3 LEJ	220000	8.0 U	
AI-GW-GS-28	N	08/23/89	1715	74.6 B	56.0 B	5.4 WJ	43.9 BEJ	3.4	0.8 J	152000	2.8 UJ	
AI-GW-GS-28	N	11/09/89	1250	73.0 BJ	19.0 U	7.9	46.0 B	1.0 U	1.0 SJ	110000	8.0 U	
AI-GW-GS-290	N	08/23/89	1815	11.5 U	40.0 U	17.4 SDJ	19.1 BEJ	1.7	2.4 J	114000	2.8 UJ	
AI-GW-GS-290	N	11/09/89	1210	180.0 BJ	19.0 U	19.0	27.0 B	1.0 U	1.1 J	69000	8.0 U	
AI-GW-GS-295	N	08/23/89	1915	11.5 U	40.0 U	19.5 LDJ	70.6 BEJ	1.0 U	0.7 J	199000	2.8 UJ	
AI-GW-GS-295	N	11/09/89	1230	41.0 UU	19.0 U	38.0	54.0 B	1.0 U	1.3 LJ	140000	8.0 U	
AI-GW-GS-300	N	08/18/89	0900	11.5 U	40.0 U	2.4 BW	41.9 B	2.4	27.1	622000	16.0	
AI-GW-GS-300	N	11/07/89	0915	230.0 J	19.0 U	3.0 U	30.0 B	1.0 U	17.0	600000 EJ	8.0 UUJ	
AI-GW-GS-300	R	11/07/89	0930	41.0 UU	19.0 U	3.0 U	24.0 B	1.0 U	17.0	520000 EJ	13.0 J	
AI-GW-GS-300	WB	11/07/89	0945	41.0 UU	19.0 U	3.0 U	12.0 U	1.0 U	0.7 J	2700 BEJ	14.0 J	
AI-GW-GS-300	BB	11/07/89	1000	100.0 BJ	19.0 U	3.0 U	12.0 U	1.0 U	0.5 J	2600 BEJ	8.0 UUJ	
AI-GW-GS-300	BFS	11/07/89	1100	130.0 BJ	150.0	58.0	93.0 B	40.0	230.0	340 BEJ	190.0	
AI-GW-GS-305	N	08/18/89	1000	451.0	40.0 U	27.1	49.3 B	3.1	0.9 BSJ	216000	2.8 U	
AI-GW-GS-305	N	08/18/89	1015	124.0 B	140.0	39.0	120.0 B	38.4	259.0	471 B	182.0	
AI-GW-GS-305	N	11/07/89	0950	110.0 BJ	19.0 U	13.0	37.0 B	1.0 U	1.1 J	230000 J	17.0 J	5 U
AI-GW-GS-310	N	08/23/89	1230	11.5 U	40.0 U	0.6 US	16.9 B	1.0 U	3.6 BJ	188000	2.8 UJ	
AI-GW-GS-310	N	11/08/89	1150	110.0 BJ	19.0 U	3.0 U	12.0 U	1.0 U	0.9 J	170000 EJ	8.0 BJ	
AI-GW-GS-315	N	08/23/89	1330	11.5 U	40.0 U	17.7	19.9 B	1.0 U	5.5 J	120000	2.8 UJ	
AI-GW-GS-315	N	11/08/89	1205	150.0 BJ	19.0 U	3.0 UWJ	24.0 B	1.0 U	3.0 J	99000 EJ	8.0 UUJ	
AI-GW-GS-32	N	08/23/89	0930	11.5 U	40.0 U	5.6 BMJ	48.9 B	1.0 U	40.9	492000	2.8 UJ	
AI-GW-GS-32	N	11/08/89	1620	530.0 J	19.0 U	3.0 UWJ	49.0 B	1.0 U	29.0	460000	8.0 U	
AI-GW-GS-33	N	08/17/89	1815	11.5 U	40.0 U	8.4 NSJ	32.0 B	2.4	12.8	167000	2.8 U	
AI-GW-GS-33	N	11/08/89	1410	65.0 BJ	19.0 U	8.5	25.0 B	1.0 U	6.9	140000 EJ	8.0 UUJ	
AI-GW-GS-340	N	08/22/89	1730	54.8 B	40.0 U	0.6 U	13.0 B	1.0 U	53.1	103000	2.8 UJ	
AI-GW-GS-340	N	11/14/89	1110	71.0 BE	19.0 U	3.0 UN	14.0 B	1.0 U	19.0	71000	8.0 U	
AI-GW-GS-345	N	08/22/89	1800	644.0	40.0 U	12.8	16.9 B	1.6 B	260.0	103000	2.8 UJ	
AI-GW-GS-345	N	11/14/89	0920	610.0 EJ	19.0 U	12.0 NJ	26.0 B	1.0 U	230.0	80000	32.0	
AI-GW-GS-350	N	08/17/89	1400	11.5 U	40.0 U	0.6 UNSJ	43.9 B	1.0 U	62.1	242000	2.8 U	
AI-GW-GS-350	N	11/08/89	1315	41.0 UU	19.0 U	3.0 UWJ	38.0 B	1.0 U	92.0	83000 EJ	14.0 J	
AI-GW-GS-355	N	08/17/89	1530	42.0 B	40.0 U	0.7 NJ	34.8 B	2.4	135.0	122000	2.8 U	
AI-GW-GS-355	N	11/08/89	1350	41.0 UU	19.0 U	3.0 UWJ	20.0 B	1.0 U	110.0	80000 EJ	19.0	

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4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS: continued

Revision level: FINAL

Sample Date Time Sample

Sample I.D.	Type	Date	Time	Sample	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium
AI-GW-GS-270	N	11/15/89	0950		17.0 B	6.0 UNUJ	120000	0.4 UNJUJ	53000 EJ	32000	2.0 U	18000
AI-GW-GS-275	N	08/22/89	1600		6.2 B	4.4 BJ	87900	5.0 UNJ	56500	0.20 U	1.6 BUN	20900
AI-GW-GS-275	N	11/15/89	0940		15.0 B	6.0 UNUJ	90000	0.4 UNJUJ	56000 EJ		3.0	25000
AI-GW-GS-28	N	08/23/89	1715		12.0 B	10.7 BEJ	1450 EJ	0.5 UNJ	387000	0.20 U	2.1	8550 EJ
AI-GW-GS-28	N	11/09/89	1250		19.0 B	6.0 UNJU	710	0.4 UNJUJ	35000		2.0 U	7700
AI-GW-GS-290	N	08/23/89	1815		2.6 U	1.4 BEJ	4 UEJ	0.5 UNJ	29400	0.20	11.0 UN	10200 EJ
AI-GW-GS-290	N	11/09/89	1210		15.0 B	6.0 UNJU	12 UNJ	0.4 UEJ	27000 J		2.0 U	6900
AI-GW-GS-295	N	08/23/89	1915		2.6 U	2.9 BEJ	22 EJ	5.0 UNJ	52300	0.20 U	8.3 S	11700 EJ
AI-GW-GS-295	N	11/09/89	1230		12.0 U	6.0 UNJU	2600	0.4 UNJUJ	46000 J		4.5	11000
AI-GW-GS-300	N	08/18/89	0900		28.2 B	135.0	3480	0.5 UJ	167000	0.20 U	87.0	24300
AI-GW-GS-300	N	11/07/89	0915		25.0 B	59.0 J	3500 EJ	0.4 UEJ	140000		25.0	20000 EJ
AI-GW-GS-300	R	11/07/89	0930		31.0 B	130.0	2800 EJ	0.4 UEJ	140000		24.0	18000 EJ
AI-GW-GS-300	WB	11/07/89	0945		16.0 B	15.0 BJ	12 UEJ	1.3 J	2700 B		2.9	1600 BEJ
AI-GW-GS-300	BB	11/07/89	1000		12.0 U	24.0 BJ	12 BEJ	1.5 J	2700 B		3.6	800 BEJ
AI-GW-GS-300	BFS	11/07/89	1100		78.0	200.0	69 BEJ	160.0	170 U		73.0	600 UEJ
AI-GW-GS-305	N	08/18/89	1000		2.6 U	8.9 B	14700	20.6 SJ	60400	0.20 U	5.9 BNJ	12000
AI-GW-GS-305	BFS	08/18/89	1015		101.0	209.0	188	203.0	122 B	2.80	81.4	273 U
AI-GW-GS-305	N	11/07/89	0950		23.0 B	29.0 J	14000 EJ	0.4 UNJUJ	63000		5.9	8300 J
AI-GW-GS-310	N	08/23/89	1230		7.0 B	21.8 B	24 B	5.0 UNJ	49900	0.20 U	1.5 BNS	9480
AI-GW-GS-310	N	11/08/89	1150		27.0 B	52.0 J	53 B	0.4 UEJ	53000 EJ		3.0	11000
AI-GW-GS-315	N	08/23/89	1330		2.6 U	5.8 BJ	22 B	0.5 UNJ	29800	0.20 U	2.2 BNJ	6580
AI-GW-GS-315	N	11/08/89	1205		26.0 B	14.0 BJ	12 U	0.4 UEJ	34000 EJ		2.0 U	6600
AI-GW-GS-32	N	08/23/89	0930		2.6 U	48.9	25 B	5.0 UJ	112000	0.20 U	52.1	19100
AI-GW-GS-32	N	11/08/89	1620		16.0 B	670.0 NJ	12 UNJ	0.4 UEJ	110000 J		31.0	17000
AI-GW-GS-33	N	08/17/89	1815		5.3 B	200.0 EJ	11 BJ	0.5 UNJ	49600 J	0.20 U	4.6	8360
AI-GW-GS-33	N	11/08/89	1410		28.0 B	140.0	12 U	0.4 UNJUJ	42000 EJ		3.7	7700
AI-GW-GS-340	N	08/22/89	1730		15.6 B	509.0	597	0.5 UJ	27700	0.20 U	13.9 BNJ	7530
AI-GW-GS-340	N	11/14/89	1110		12.0 U	56.0	19 BJ	0.4 UNWDR	22000 EJ		8.9 N	6400
AI-GW-GS-345	N	08/22/89	1800		30.9 B	12100.0	24600	179.0 SJ	27800	0.20 U	13.9 BNJ	6710
AI-GW-GS-345	N	11/14/89	0920		15.0 B	11000.0	22000	140.0 ND	26000 EJ		17.0 N	5800
AI-GW-GS-350	N	08/17/89	1400		22.4 B	169.0 EJ	35 BJ	0.5 UNJ	60400 J	0.20 U	73.8 J	12900
AI-GW-GS-350	N	11/08/89	1315		43.0 B	180.0	12 U	0.4 UNJUJ	24000 EJ		70.0	10000
AI-GW-GS-355	N	08/17/89	1530		51.1	55.3 EJ	152 J	0.5 UNJ	33000 J	0.20 U	120.0 J	14600
AI-GW-GS-355	N	11/08/89	1350		66.0	90.0	72 BJ	0.4 UNJUJ	24000 EJ		88.0	13000

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4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL DISSOLVED METALS: continued

04/10/90
COMMON IONS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Chloride (mg/L)	Fluoride (mg/L)	Nitrate and Nitrite as N (mg/L)
AI-GW-GS-27D	N	11/15/89	0950	5.0 UENJ	1.8 WJ	300000 EJ	380.0	6.0 U	1500	626.0	1.53	0.01 UNJ
AI-GW-GS-27S	N	08/22/89	1600	1.2 UWNJ	1.0 UNEJ	306000	20.0 UNR	4.2 B	2650	684.0	4.99	0.05 U
AI-GW-GS-27S	N	11/15/89	0940	5.0 UENJ	0.2 ULJ	350000 EJ	260.0	9.0 B	1800	651.0	3.68	0.01 UNUJ
AI-GW-GS-28	N	08/23/89	1715	12.0 UNR	1.0 UWNJ	55900	20.0 E	16.8 B	267	28.0	1.29	0.16
AI-GW-GS-28	N	11/09/89	1250	5.0 UWNJ	0.2 UWNJ	43000	13.0	6.0 U	160 MJ	20.3	0.10 U	0.02 J
AI-GW-GS-29D	N	08/23/89	1815	12.0 UNR	1.0 UWNJ	103000	20.0 E	2.7 U	53 J	12.2	2.00	0.05 U
AI-GW-GS-29D	N	11/09/89	1210	5.0 UWNJ	0.2 UWNJ	67000	22.0	6.0 U	7 BNJ	11.1	1.35	0.01 UNJ
AI-GW-GS-29S	N	08/23/89	1915	12.0 UNR	1.0 UWNJ	87200	20.0 E	6.6 B	1400	24.8	1.69	1.72
AI-GW-GS-29S	N	11/09/89	1230	5.0 UWNJ	0.2 UWNJ	66000	23.0	6.0 U	900 MJ	19.8	0.71	0.82 J
AI-GW-GS-30D	N	08/18/89	0900	12.0 UWNJ	1.0 UNEJ	110000	20.0 UNR	2.7 U	2900	42.2	2.20	0.61
AI-GW-GS-30D	N	11/07/89	0915	5.0 U	0.7 LJ	100000	140.0	6.0 U	3000	27.6	0.10 U	0.50 J
AI-GW-GS-30D	R	11/07/89	0930	5.0 U	0.2 U	94000	120.0	6.0 U	3000	31.4	0.10 U	0.65 J
AI-GW-GS-30D	WB	11/07/89	0945	5.0 U	0.2 U	1200 B	9.0 U	6.0 U	50 J	0.5 U	0.10 U	0.46 J
AI-GW-GS-30D	BB	11/07/89	1000	5.0 U	0.2 U	1000 B	9.0 U	12.0 B	15 BJ	0.5 U	0.10 U	0.46 J
AI-GW-GS-30D	BFS	11/07/89	1100	44.0 LJ	75.0	210 U	65.0	210.0	230 J	377.0	12.00	4.70
AI-GW-GS-30S	N	08/18/89	1000	12.0 UNJ	0.1 UWNJ	59600	20.0 UWNJ	2.7 U	161	42.2	1.59	0.05 U
AI-GW-GS-30S	BFS	08/18/89	1015	38.0 NLJ	1.7 BNJ	339 B	35.4 NJ	210.0	235	195.0	1.56	0.06 R
AI-GW-GS-30S	N	11/07/89	0950	5.0 U	0.2 U	56000	410.0	11.0 B	83 J	39.7	0.10 U	0.01 UNJ
AI-GW-GS-31D	N	08/23/89	1230	1.2 UWNJ	1.0 UWNJ	48700	20.0 UNR	2.7 U	341	21.7	0.84	3.93
AI-GW-GS-31D	N	11/08/89	1150	5.0 UWNJ	0.2 ULJ	57000 EJ	9.0 U	6.0 U	330	11.9	0.10 U	1.92
AI-GW-GS-31S	N	08/23/89	1330	1.2 UNSJ	1.0 UWNJ	31700	20.0 UNR	2.7 U	128	22.2	0.92	0.09
AI-GW-GS-31S	N	11/08/89	1205	5.0 UWNJ	0.2 U	36000 EJ	9.0 U	6.0 U	46 J	13.4	0.10 U	3.58
AI-GW-GS-32	N	08/23/89	0930	1.2 UWNJ	1.0 UNEJ	103000	20.0 UWNJ	2.7 U	7540	29.8	1.24	1.96
AI-GW-GS-32	N	11/08/89	1620	5.0 UENJ	0.2 WJ	100000	9.0 U	12.0 B	7200 MJ	20.6	0.10 U	1.52 J
AI-GW-GS-33	N	08/17/89	1815	12.0 UWN	0.1 UW	159000 EJ	1.0 UW	2.7 U	382	127.0	1.70	14.70
AI-GW-GS-33	N	11/08/89	1410	5.0 U	0.7	140000 EJ	9.0 U	6.0 U	420	161.0	0.10 U	13.70
AI-GW-GS-34D	N	08/22/89	1730	1.3 BWNJ	1.0 UWNJ	79500	20.0 UNR	2.7 U	32600	43.1	1.89	3.07
AI-GW-GS-34D	N	11/14/89	1110	5.0 UUNJ	0.3 NLDJ	69000	170.0	7.0 B	21000	35.9	1.20	2.70
AI-GW-GS-34S	N	08/22/89	1800	1.2 UNJ	1.0 UNEJ	52200	20.0 UNR	2.7 U	151000	53.0	2.70	0.05 U
AI-GW-GS-34S	N	11/14/89	0920	5.0 UWNJ	0.4 NLDJ	41000	480.0	6.0 U	140000	35.6	0.96	0.01 U
AI-GW-GS-35D	N	08/17/89	1400	12.0 UWNJ	0.1 UW	109000 EJ	1.0 UW	3.1 B	12400	99.0	1.95	8.34
AI-GW-GS-35D	N	11/08/89	1315	5.0 UWNJ	0.3 LJ	46000 EJ	540.0	6.0 U	24000	48.7	0.74	8.61
AI-GW-GS-35S	N	08/17/89	1530	12.0 UWNJ	0.1 UW	65100 EJ	1.0 UW	2.7 U	32200	52.8	1.39	10.20
AI-GW-GS-35S	N	11/08/89	1350	5.0 UWNJ	0.2 UWNJ	49000 EJ	450.0	6.0 B	33000	40.9	0.82	8.44

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4) Blank values indicate parameters not determined or not reported.

04/10/90

Revision level: FINAL		OTHER PARAMETERS:					
Sample I.D.	Sample Type	Sample Date	Sample Time	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Hardness (mg/L) (5)	Comments
AI-GW-GS-27D	N	11/15/89	0950	517.0	267	818	
AI-GW-GS-27S	N	08/22/89	1600	536.0	154	730	
AI-GW-GS-27S	N	11/15/89	0940	542.0	274	780	
AI-GW-GS-28	N	08/23/89	1715	562.0	69	1973	
AI-GW-GS-28	N	11/09/89	1250	448.0	92 J	419	
AI-GW-GS-29D	N	08/23/89	1815	508.0	92	406	
AI-GW-GS-29D	N	11/09/89	1210	385.0	124 J	283	
AI-GW-GS-29S	N	08/23/89	1915	756.0	89	712	
AI-GW-GS-29S	N	11/09/89	1230	619.0	114 J	539	
AI-GW-GS-30D	N	08/18/89	0900	1320.0	76	2241	
AI-GW-GS-30D	N	11/07/89	0915	2560.0	73	2075	
AI-GW-GS-30D	R	11/07/89	0930	2340.0	68	1875	
AI-GW-GS-30D	WB	11/07/89	0945	0.5 U	3	18	
AI-GW-GS-30D	BB	11/07/89	1000	0.5 U	3	18	
AI-GW-GS-30D	BFS	11/07/89	1100	347.0	245 J	462	
AI-GW-GS-30S	N	08/18/89	1000	887.0	139	788	
AI-GW-GS-30S	BFS	08/18/89	1015	329.0	243	2	
AI-GW-GS-30S	N	11/07/89	0950	753.0	126	834	
AI-GW-GS-31D	N	08/23/89	1230	757.0	58	675	
AI-GW-GS-31D	N	11/08/89	1150	770.0 J	83 J	643	
AI-GW-GS-31S	N	08/23/89	1330	438.0	98	422	
AI-GW-GS-31S	N	11/08/89	1205	428.0 J	116 J	387	
AI-GW-GS-32	N	08/23/89	0930	1930.0	2 U	1690	
AI-GW-GS-32	N	11/08/89	1620	2080.0 J	102 J	1602	
AI-GW-GS-33	N	08/17/89	1815	192.0	310	621	
AI-GW-GS-33	N	11/08/89	1410	401.0 J	330	523	
AI-GW-GS-34D	N	08/22/89	1730	453.0	65	371	
AI-GW-GS-34D	N	11/14/89	1110	414.0	76	268	
AI-GW-GS-34S	N	08/22/89	1800	778.0	2 U	372	
AI-GW-GS-34S	N	11/14/89	0920	676.0	3 UUJ	307	
AI-GW-GS-35D	N	08/17/89	1400	805.0	180	853	
AI-GW-GS-35D	N	11/08/89	1315	427.0 J	160	306	
AI-GW-GS-35S	N	08/17/89	1530	506.0	111	441	
AI-GW-GS-35S	N	11/08/89	1350	397.0 J	126 J	299	

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5) Hardness calculated from concentrations of calcium and magnesium. [Hardness = 2.497*Ca + 4.118*Mg]

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	EPA Tag Numbers	Sample Method	pH (s.u.)	Specific Conductance (umhos/cm)	Eh (mV)
AI-GW-GS-40	N	08/15/89	1300	8-93952, 8-93951	GRAB	5.4	1170	180
AI-GW-GS-40	N	11/06/89	1450	8-21961, 8-21960	GRAB	5.9	2543	210
AI-GW-GS-41D	N	08/15/89	1700	8-93958, 8-93957	GRAB	3.9	6835	120
AI-GW-GS-41D	N	11/08/89	0845	8-94023, 8-94022	GRAB	4.2	5780	250
AI-GW-GS-41S	N	08/15/89	1800	8-93961, 8-93960	GRAB	3.8	6006	85
AI-GW-GS-41S	N	11/08/89	0905	8-94026, 8-94025	GRAB	4.1	5338	185
AI-GW-GS-42D	N	08/16/89	0840	8-93964, 8-93963	GRAB	4.2	3625	120
AI-GW-GS-42D	N	11/07/89	1530	8-94011, 8-94010	GRAB	4.1	4492	280
AI-GW-GS-42S	N	08/16/89	0930	8-93967, 8-93966	GRAB	3.9	5567	
AI-GW-GS-42S	R	08/16/89	0945	8-93970, 8-93969	GRAB	3.7	5860	
AI-GW-GS-42S	BB	08/16/89	1115	8-93973, 8-93972	GRAB			
AI-GW-GS-42S	WB	08/16/89	1145	8-93976, 8-93975	GRAB			
AI-GW-GS-42S	N	11/07/89	1615	8-94014, 8-94013	GRAB	5.1	2530	
AI-GW-GS-43D	N	08/16/89	1630	8-93985, 8-93984	GRAB	5.3	3306	210
AI-GW-GS-43D	N	11/06/89	1600	8-21970, 8-21969	GRAB	4.4	1930	
AI-GW-GS-43S	N	08/16/89	1715	8-93988, 8-93987	GRAB	3.5	1980	290
AI-GW-GS-43S	N	11/06/89	1345	8-21958, 8-21957	GRAB	5.5	1084	220
AI-GW-GS-44D	N	08/17/89	1000	8-93991, 8-93990	GRAB	6.2	820	210
AI-GW-GS-44D	N	11/07/89	1650	8-94017, 8-94016	GRAB	5.3	339	230
AI-GW-GS-44S	N	08/17/89	1000	8-93994, 8-93993	GRAB	6.3	301	220
AI-GW-GS-44S	N	11/07/89	1710	8-94020, 8-94019	GRAB	4.0	4100	200
AI-GW-GS-45	N	08/15/89	1500	8-93955, 8-93954	GRAB	4.2	4125	300
AI-GW-GS-45	N	11/06/89	1330	8-21955, 8-21954	GRAB	6.3	557	
AI-GW-GS-46D	N	08/17/89	1100	8-93997, 8-93996	GRAB	6.5	653	200
AI-GW-GS-46D	N	11/06/89	1715	8-21976, 8-21975	GRAB	6.7	357	
AI-GW-GS-46S	N	08/17/89	1145	8-94000, 8-93999	GRAB	6.8	449	
AI-GW-GS-46S	N	11/06/89	1735	8-21979, 8-21978	GRAB	7.2	1214	130
AI-GW-GS-50	N	08/21/89	1530	8-93885, 8-93884	GRAB	7.2	2268	165
AI-GW-GS-50	N	11/06/89	1715	8-21973, 8-21972	GRAB	3.8	1863	210
AI-PW-04	N	11/08/89	1645	8-94056, 8-94055	GRAB	3.7	1912	190
AI-PW-04	R	11/08/89	1700	8-94059, 8-94058	GRAB			
AI-PW-04	BB	11/08/89	1715	8-94065, 8-94061	GRAB			
AI-PW-04	WB	11/08/89	1730	8-94065, 8-94064	GRAB			
AI-PW-04	BFS	11/08/89	1745	8-94068, 8-94067	GRAB			

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04/10/90

DISSOLVED METALS:

Revision level: FINAL

Sample I.D.	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium (Hexavalent)
AI-GW-GS-40	N	08/15/89	1300	188.0 B	40.0 U	0.6 UNJ	18.0 B	1.6	52.6	292000	2.8 U
AI-GW-GS-40	N	11/06/89	1450	180.0 BJ	19.0 U	3.0 U	12.0 U	1.0 U	43.0	320000 EJ	87.0
AI-GW-GS-41D	N	08/15/89	1700	71800.0	40.0 U	3.0 NSJ	13.8 B	40.8	1640.0	435000	2.8 U
AI-GW-GS-41D	N	11/08/89	0845	63000.0	19.0 B	38.0 LJ	12.0 U	28.0	1700.0	400000 EJ	85.0
AI-GW-GS-41S	N	08/15/89	1800	92400.0	40.0 U	21.6 NLJ	16.7 B	36.9	1780.0	387000	2.8 U
AI-GW-GS-41S	N	11/08/89	0905	84000.0	19.0 U	63.0 LJ	12.0 U	29.0	1700.0	340000 EJ	48.0 J
AI-GW-GS-42D	N	08/16/89	0840	13300.0	40.0 U	1.6 NJ	17.4 B	16.8	1010.0	423000	2.8 U
AI-GW-GS-42D	N	11/07/89	1530	14000.0	19.0 U	3.0 U	18.0 B	15.0	960.0	460000 J	150.0
AI-GW-GS-42S	N	08/16/89	0930	111000.0	40.0 U	6.0 UNJ	23.2 B	41.0	834.0	385000	2.8 U
AI-GW-GS-42S	R	08/16/89	0945	110000.0	40.0 U	6.0 UNJ	23.9 B	42.1	842.0	386000	2.8 U
AI-GW-GS-42S	BB	08/16/89	1115	11.5 U	40.0 U	6.0 UNJ	1.3 U	1.0 U	0.6 J	6 B	2.8 U
AI-GW-GS-42S	WB	08/16/89	1145	11.5 U	40.0 U	0.6 UNJ	1.4 B	1.0 U	0.3 J	46 B	2.8 U
AI-GW-GS-42S	N	11/07/89	1615	110000.0	33.0 B	33.0	12.0 U	29.0	920.0	390000 EJ	53.0 J
AI-GW-GS-43D	N	08/16/89	1630	1030.0	40.0 U	0.6 UNJ	21.7 B	1.0 U	150.0	451000	2.8 U
AI-GW-GS-43D	N	11/06/89	1600	660.0	19.0 U	3.0 U	22.0 B	1.0 U	110.0	440000 EJ	100.0
AI-GW-GS-43S	N	08/16/89	1715	8570.0	40.0 U	0.7 NJ	18.8 B	11.1	533.0	274000	2.8 U
AI-GW-GS-43S	N	11/06/89	1345	9100.0	19.0 U	3.6	12.0 B	12.0	610.0	300000 EJ	50.0 J
AI-GW-GS-44D	N	08/17/89	1000	382.0	40.0 U	0.6 UNJ	21.7 B	1.6	91.7	120000	2.8 U
AI-GW-GS-44S	N	11/07/89	1650	540.0	19.0 U	3.0 U	16.0 B	1.5	100.0	83000 EJ	17.0 J
AI-GW-GS-44S	N	08/17/89	1000	686.0	40.0 U	0.6 UNJ	23.2 B	2.1	25.4	29300	2.8 U
AI-GW-GS-44S	N	11/07/89	1710	720.0	19.0 U	3.0 U	31.0 B	1.3	36.0	24000 EJ	8.0 UJ
AI-GW-GS-45	N	08/15/89	1500	56900.0	40.0 U	6.0 UNJ	17.3 B	22.9	954.0	446000	2.8 U
AI-GW-GS-45	N	11/06/89	1330	61000.0	19.0 U	53.0	31.0 B	20.0	1000.0	480000 EJ	140.0
AI-GW-GS-46D	N	08/17/89	1100	20.1 B	24.5 B	0.6 UNJ	41.3 B	1.0 U	4.7	65000	2.8 U
AI-GW-GS-46D	N	11/06/89	1715	140.0 BJ	19.0 U	3.0 U	41.0 B	1.0 U	8.9	58000 EJ	8.0 UJ
AI-GW-GS-46S	N	08/17/89	1145	238.0	40.0 U	0.6 UNJ	92.0 B	1.6	10.0	36400	2.8 U
AI-GW-GS-46S	N	11/06/89	1735	41.0 UU	19.0 U	3.0 U	46.0 B	1.0 U	5.6	46000 EJ	8.0 UJ
AI-GW-GS-50	N	08/21/89	1530	56.9 B	40.0 U	15.8	18.9 B	1.0 U	3.4 BSJ	123 B	2.8 U
AI-GW-GS-50	N	11/06/89	1715	83.0 BJ	19.0 U	18.0	21.0 B	1.0 U	3.0 J	100000 EJ	8.0 UJ
AI-PW-04	N	11/08/89	1645	2600.0	19.0 U	1600.0	13.0 B	1.9	180.0	130000 EJ	12.0 J
AI-PW-04	R	11/08/89	1700	2500.0	19.0 U	1800.0	12.0 U	1.5	170.0	110000 EJ	13.0 J
AI-PW-04	BB	11/08/89	1715	41.0 UU	19.0 U	3.0 U	12.0 U	1.0 U	0.6 J	300 BEJ	8.0 UJ
AI-PW-04	WB	11/08/89	1730	59.0 BJ	19.0 U	3.0 UNJ	12.0 U	1.0 U	0.7 J	280 BEJ	8.0 U
AI-PW-04	BFS	11/08/89	1745	64.0 BJ	150.0	45.0	120.0 B	34.0	220.0	280 BEJ	180.0

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4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS: continued

Revision level: FINAL

Sample Date Sample Time

Sample I.D.	Type	Date	Time	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium
AI-GW-GS-40	N	08/15/89	1300	270.0	80.4 EJ	42000	0.5 UWJ	97200 J	114000	0.20 U	233.0 J	19400
AI-GW-GS-40	N	11/06/89	1450	310.0	120.0 J	53000 EJ	0.4 UWJ	91000	110000 EJ		150.0	20000 EJ
AI-GW-GS-41D	N	08/15/89	1700	1130.0	294000.0 EJ	1800000	50.3	219000 J	153000	0.20 U	681.0 J	14800
AI-GW-GS-41D	N	11/08/89	0845	1300.0	320000.0	1569950	120.0	210000 EJ	160000 EJ		460.0	15000
AI-GW-GS-41S	N	08/15/89	1800	810.0	492000.0 EJ	1100000	101.0 S	169000 J	99800	0.20 U	613.0 J	14200
AI-GW-GS-41S	N	11/08/89	0905	960.0	52000.0	890000	93.0	170000 EJ	110000 EJ		470.0	14000
AI-GW-GS-42D	N	08/16/89	0840	1580.0	68200.0 EJ	98200	29.3 SJ	170000 J	352000	0.20 U	506.0 J	21700
AI-GW-GS-42D	N	11/07/89	1530	1900.0	81000.0	130000 EJ	81.0	180000	360000 EJ		400.0	23000 J
AI-GW-GS-42S	N	08/16/89	0930	648.0	279000.0 EJ	1730000	30.9 SJ	230000 J	110000	0.20 U	415.0 J	15400
AI-GW-GS-42S	R	08/16/89	0945	639.0	285000.0 EJ	1770000	31.3 SJ	239000 J	112000	0.20 U	422.0 J	14600
AI-GW-GS-42S	BB	08/16/89	1115	2.6 U	1.1 UEJ	49 BJ	0.5 UJ	130 J	3 BJ	0.20 U	1.1 U	273 U
AI-GW-GS-42S	WB	08/16/89	1145	2.8 B	1.1 UEJ	76 BJ	9.5 WJ	30 J	7 BJ	0.20 U	1.1 U	319 B
AI-GW-GS-42S	N	11/07/89	1615	740.0	350000.0	1581210	150.0	180000 EJ	100000 EJ		250.0	14000
AI-GW-GS-43D	N	08/16/89	1630	775.0	2240.0 EJ	31700	0.5 UJ	152000 J	142000	0.20 U	270.0 J	27400
AI-GW-GS-43D	N	11/06/89	1600	810.0	1200.0	36000 EJ	0.4 UWJ	110000	120000 EJ		210.0	23000 EJ
AI-GW-GS-43S	N	08/16/89	1715	377.0	15100.0 EJ	219 J	12.0 SJ	61800 J	64400	0.20 U	223.0 J	19700
AI-GW-GS-43S	N	11/06/89	1345	420.0	17000.0	340 EJ	12.0 S	56000	67000 EJ		200.0	17000 EJ
AI-GW-GS-44D	N	08/17/89	1000	175.0	3110.0 EJ	30 BJ	0.5 UWJ	34100 J	33400	0.20 U	157.0 J	9330
AI-GW-GS-44D	N	11/07/89	1650	230.0	4600.0	210	0.4 UWJ	26000 EJ	34000 EJ		110.0	6500
AI-GW-GS-44S	N	08/17/89	1000	34.9 B	1980.0 EJ	106 J	0.5 UWJ	7560 J	5670	0.20 U	23.2	3720
AI-GW-GS-44S	N	11/07/89	1710	47.0 B	2000.0	45 BWJ	2.2 WJ	6600 EJ	7000 EJ		29.0	3300 B
AI-GW-GS-45	N	08/15/89	1500	2760.0	79600.0 EJ	198 J	7.7 WJ	164000 J	219000	0.20 U	526.0 J	25000
AI-GW-GS-45	N	11/06/89	1330	2700.0	93000.0	85 BEJ	0.4 UEJ	120000	200000 EJ		380.0	23000 EJ
AI-GW-GS-46D	N	08/17/89	1100	3.8 B	11.8 BEJ	107 J	0.5 UWJ	17700 J	132	0.20 U	2.8	5210
AI-GW-GS-46D	N	11/06/89	1715	15.0 B	15.0 BJ	12 UEJ	0.4 UWJ	17000	62 EJ		2.5	5300 EJ
AI-GW-GS-46S	N	08/17/89	1145	2.6 U	221.0 EJ	130 J	0.9 WJ	10500 J	543	0.20 U	8.8	4400 B
AI-GW-GS-46S	N	11/06/89	1735	12.0 U	19.0 BJ	23 BEJ	0.4 UWJ	14000	68 EJ		4.5	5100 EJ
AI-GW-GS-50	N	08/21/89	1530	2.8 B	8.7 B	115 J	0.5 UJ	18000	262	0.20 U	2.6 BNJ	15400
AI-GW-GS-50	N	11/06/89	1715	12.0 U	13.0 BJ	33 BEJ	0.4 UEJ	18000	190 EJ		2.6	17000 EJ
AI-PW-04	N	11/08/89	1645	42.0 B	14000.0	41000	460.0	28000 EJ	15000 EJ		19.0	4500 B
AI-PW-04	R	11/08/89	1700	49.0 B	13000.0	33000	650.0	25000 EJ	15000 EJ		25.0	4800 B
AI-PW-04	BB	11/08/89	1715	23.0 B	6.0 UJ	12 U	0.4 UWJ	170 UEJ	13 BEJ		4.3	600 U
AI-PW-04	WB	11/08/89	1730	12.0 U	17.0 BJ	12 U	0.4 UJ	170 UEJ	15 BEJ		2.5	600 U
AI-PW-04	BFS	11/08/89	1745	91.0	190.0	100 BJ	150.0	170 UEJ	210 EJ		69.0	600 U

NOTES: 1) Units are ug/L unless otherwise noted.

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3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = spike sample recovery was not within control addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL DISSOLVED METALS: continued

04/10/90

COMMON IONS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Chloride (mg/L)	Fluoride (mg/L)	Nitrate and Nitrite as N (mg/L)
AI-GW-GS-40	N	08/15/89	1300	12.0 UWNJ	1.0 UW	31700 EJ	1.0 UW	2.7 U	21200	8.9	2.84	0.18
AI-GW-GS-40	N	11/06/89	1450	5.0 U	20.0	31000	1600.0	6.0 U	24000	4.0	1.62	0.01 UJJ
AI-GW-GS-41D	N	08/15/89	1700	12.0 UWNJ	1.0 U	75800 EJ	1.0 UW	94.5	373000	21.9	14.10	0.11
AI-GW-GS-41D	N	11/08/89	0845	5.0 U	17.0	74000 EJ	2400.0	89.0	420000	18.0	7.13	0.39 J
AI-GW-GS-41S	N	08/15/89	1800	12.0 UNJ	1.0 U	67200 EJ	10.0 U	301.0	316000	60.9	14.60	0.05 U
AI-GW-GS-41S	N	11/08/89	0905	5.0 U	12.0	60000 EJ	2100.0	420.0	360000	66.5	6.54	0.47 J
AI-GW-GS-42D	N	08/16/89	0840	12.0 UNJ	1.0 U	91700 EJ	13.4	2.7 U	220000	33.8	7.94	0.07
AI-GW-GS-42D	N	11/07/89	1530	5.0 U	52.0	100000	4900.0	6.0 U	280000	26.4	3.74	0.25 J
AI-GW-GS-42S	N	08/16/89	0930	1.2 UNJ	1.0 U	79400 EJ	1.0 UW	256.0	200000	52.9	12.10	0.05 U
AI-GW-GS-42S	R	08/16/89	0945	1.2 UNJ	1.0 U	75900 EJ	1.0 UW	251.0	223000	53.0	12.40	0.05 U
AI-GW-GS-42S	B8	08/16/89	1115	1.2 UNJ	1.0 UW	13 UEJ	1.0 U	2.7 U	1 U	0.1 U	0.05 U	0.05 U
AI-GW-GS-42S	WB	08/16/89	1145	1.2 UNJ	0.1 U	59 BEJ	1.0 U	2.7 U	1 U	0.1 U	0.05 U	0.05 U
AI-GW-GS-42S	N	11/07/89	1615	5.0 U	11.0	72000 EJ	1200.0	110.0	290000	43.4	4.60	0.27 J
AI-GW-GS-430	N	08/16/89	1630	12.0 UWNJ	1.0 UW	50300 EJ	14.2	2.7 U	44600	32.5	3.87	0.05 U
AI-GW-GS-430	N	11/06/89	1600	5.0 U	21.0	39000	200.0	6.0 U	54000	22.3	0.10 U	0.01 UJJ
AI-GW-GS-43S	N	08/16/89	1715	12.0 UWNJ	1.0 UW	40100 EJ	10.0 U	2.7 U	73500	24.8	6.47	0.30
AI-GW-GS-43S	N	11/06/89	1345	5.0 U	11.0	41000	920.0	6.0 U	96000	7.7	2.70	12.40
AI-GW-GS-44D	N	08/17/89	1000	12.0 UWNJ	0.1 UW	26200 EJ	12.5	2.7 U	23300	14.3	1.52	2.01
AI-GW-GS-44D	N	11/07/89	1650	5.0 U	0.2 UWJ	21000 EJ	560.0	7.0 B	25000	23.1	7.92	1.40
AI-GW-GS-44S	N	08/17/89	1000	12.0 UWNJ	0.1 UW	14400 EJ	1.0 UW	2.7 U	7520	19.2	1.12	5.53
AI-GW-GS-44S	N	11/07/89	1710	5.0 U	0.2 UWJ	11000 EJ	91.0	6.0 U	8300	16.2	0.82	8.33
AI-GW-GS-45	N	08/15/89	1500	12.0 UNJ	1.0 U	93300 EJ	10.0 U	2.7 U	171000	47.4	15.30	7.16
AI-GW-GS-45	N	11/06/89	1330	5.0 U	32.0	87000	4100.0	6.0 U	250000	42.2	9.75	7.84
AI-GW-GS-46D	N	08/17/89	1100	1.2 UWNJ	0.1 U	30100 EJ	1.0 UW	2.7 U	444	28.1	0.26	10.10
AI-GW-GS-46D	N	11/06/89	1715	5.0 U	0.2 U	29000	9.0 U	6.0 U	430	18.8	0.10 U	10.20
AI-GW-GS-46S	N	08/17/89	1145	1.2 UWNJ	0.1 U	24600 EJ	1.0 UW	3.5 B	1750	9.8	0.37	5.26
AI-GW-GS-46S	N	11/06/89	1735	5.0 U	0.2 U	27000	19.0	6.0 U	1000	14.0	0.29	6.05
AI-GW-GS-50	N	08/21/89	1530	3.3 MLJ	1.0 UNEJ	99600	20.0 UNR	2.7 U	799	21.7	2.06	0.15
AI-GW-GS-50	N	11/06/89	1715	5.0 U	0.2 U	90000	9.0 U	9.0 B	770	18.0	1.36	0.29 J
AI-PW-04	N	11/08/89	1645	5.0 U	0.2 UWJ	86000 EJ	200.0	14.0 B	74000	28.3	0.63	0.01 UJJ
AI-PW-04	R	11/08/89	1700	5.0 U	0.2 US	82000 EJ	170.0	6.0 U	67000	23.8	0.62	0.01 UJJ
AI-PW-04	B8	11/08/89	1715	5.0 U	0.2 UWJ	210 UEJ	9.0 U	6.0 U	14 BJ	0.5 U	0.10 U	0.22 J
AI-PW-04	WB	11/08/89	1730	5.0 U	0.2 UWJ	210 UEJ	9.0 U	6.0 U	22 J	0.5 U	0.24	0.01 UJJ
AI-PW-04	BFS	11/08/89	1745	52.0 LJ	86.0	210 UEJ	30.0	200.0	230	322.0	12.30	4.68

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

Revision level: FINAL OTHER PARAMETERS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Hardness (mg/L) (5)	Comments
AI-GW-GS-40	N	08/15/89	1300	1570.0	1 U	1129	
AI-GW-GS-40	N	11/06/89	1450	2170.0	3 U	1174	
AI-GW-GS-41D	N	08/15/89	1700	10010.0	1 U	1988	
AI-GW-GS-41D	N	11/08/89	0845	234.0	3 UJJ	1864	
AI-GW-GS-41S	N	08/15/89	1800	8050.0	1 U	1662	
AI-GW-GS-41S	N	11/08/89	0905	8610.0	3 UJJ	1549	
AI-GW-GS-42D	N	08/16/89	0840	5500.0	1 U	1756	
AI-GW-GS-42D	N	11/07/89	1530	2170.0	3 U	1890	
AI-GW-GS-42S	N	08/16/89	0930	11400.0	1 U	1908	
AI-GW-GS-42S	R	08/16/89	0945	11500.0	1 U	1948	
AI-GW-GS-42S	BB	08/16/89	1115	0.1 U	2	1	
AI-GW-GS-42S	WB	08/16/89	1145	0.1 U	3	0	
AI-GW-GS-42S	N	11/07/89	1615	2340.0	3 UJJ	1715	
AI-GW-GS-43D	N	08/16/89	1630	2680.0	1 U	1752	
AI-GW-GS-43D	N	11/06/89	1600	3230.0	3 U	1552	
AI-GW-GS-43S	N	08/16/89	1715	1632.0	1 U	939	
AI-GW-GS-43S	N	11/06/89	1345	1970.0	3 U	980	
AI-GW-GS-44D	N	08/17/89	1000	561.0	16	440	
AI-GW-GS-44D	N	11/07/89	1650	532.0	32 J	314	
AI-GW-GS-44S	N	08/17/89	1000	121.0	8	104	
AI-GW-GS-44S	N	11/07/89	1710	125.0	27 J	87	
AI-GW-GS-45	N	08/15/89	1500	3930.0	1 U	1789	
AI-GW-GS-45	N	11/06/89	1330	4160.0	3 U	1693	
AI-GW-GS-46D	N	08/17/89	1100	117.0	1 U	235	
AI-GW-GS-46D	N	11/06/89	1715	117.0	117	215	
AI-GW-GS-46S	N	08/17/89	1145	53.4	106	134	
AI-GW-GS-46S	N	11/06/89	1735	44.7	135	173	
AI-GW-GS-50	N	08/21/89	1530	486.0	100	74	
AI-GW-GS-50	N	11/06/89	1715	1290.0	109	324	
AI-PW-04	N	11/08/89	1645	2150.0 J	3 UJJ	440	
AI-PW-04	R	11/08/89	1700	1190.0 J	3 UJJ	378	
AI-PW-04	BB	11/08/89	1715	0.5 UJJ	29 J	1	
AI-PW-04	WB	11/08/89	1730	0.5 UJJ	27 J	1	
AI-PW-04	BFS	11/08/89	1745	349.0 J	243	463	

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4) Blank values indicate parameters not determined or not reported.

5) Hardness calculated from concentrations of calcium and magnesium. [Hardness = 2.497*Ca + 4.118*Mg]

Sample I.D.	Sample Type	Sample Date	Sample Time	EPA Tag Numbers	Sample Method	pH (s.u.)	Specific Conductance (umhos/cm)	Eh (mV)
AI-W-01	N	11/15/89	1120	8-86867	GRAB	6.7	863	135
AMC-12	N	11/08/89	1100	8-94032, 8-94031	GRAB	5.2	2986	
AMC-13	N	08/24/89	1800	8-93519, 8-93518	GRAB	6.3	1410	60
AMC-13	N	11/06/89	1540	8-21967, 8-21966	GRAB	6.1	1093	170
AMC-23	N	11/08/89	1245	8-94041, 8-94040	GRAB	6.6	2776	
AMC-24	N	11/08/89	1315	8-94047, 8-94046	GRAB	6.6	1413	120
BMW-10A	N	11/09/89	1420	8-94094, 8-94093	GRAB	6.2	1263	230
BMW-4A	N	11/09/89	1700	8-78578, 8-78577	GRAB	4.0	1922	180
BMW-4B	N	11/09/89	1730	8-78581, 8-78580	GRAB	5.0	2246	180
BMW-4T	N	11/15/89	1315	8-86870, 8-86869	GRAB	5.8	2032	165
BMW-4T	R	11/15/89	1330	8-86873, 8-86872	GRAB	5.0	1914	200
BMW-4T	WB	11/15/89	1345	8-43750, 8-86875	GRAB			
BMW-4T	BB	11/15/89	1400	8-86877, 8-86876	GRAB			
BMW-4T	BFS	11/15/89	1415	8-86880, 8-86879	GRAB			
BMW-68	N	11/09/89	1215	8-94082, 8-94081	GRAB	5.5	2698	220
CT-84-10	N	11/10/89	1130	8-78587, 8-78586	GRAB	4.5	1395	210
CT-84-10	R	11/10/89	1145	8-78376, 8-78375	GRAB	4.6	1427	210
CT-84-10	BB	11/10/89	1200	8-78379, 8-78378	GRAB			
CT-84-10	WB	11/10/89	1215	8-78381, 8-78989	GRAB			
CT-84-10	BFS	11/10/89	1230	8-94498, 8-87548	GRAB			
MF-04	N	11/09/89	1415	8-94097, 8-94096	GRAB	7.0	1757	100
MP-07	N	11/15/89	1100	8-94496, 8-94495	GRAB	6.3	784	110

- NOTES:
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 - 3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.
 - 4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS:

Revision level: FINAL			PROCESSED MATERIAL										
Sample I.D.	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Chromium (Hexavalent)	
AI-W-01	N	11/15/89	1120										
AMC-12	N	11/08/89	1100	550.0	19.0 U	3.0 U	12.0 B	1.8	290.0	340000 EJ	87.0		
AMC-13	N	08/24/89	1800	11.5 U	48.7 B	2.8 LDJ	20.0 BEJ	1.7	13.0	229000	2.8 UJ		
AMC-13	N	11/06/89	1540	100.0 BJ	19.0 U	3.0 U	27.0 B	1.0 U	5.9	210000 EJ	9.0 BUJ		
AMC-23	N	11/08/89	1245	41.0 UJ	19.0 U	3.0 U	27.0 B	1.0 U	18.0	360000 EJ	8.0 UJ		
AMC-24	N	11/08/89	1315	41.0 UJ	19.0 U	5.3 WJ	32.0 B	1.0 U	2.4 J	140000 EJ	8.0 UJ		
BMW-10A	N	11/09/89	1420	580.0 J	19.0 U	6.6	17.0 B	1.0 U	220.0	110000	8.0 U		
BMW-4A	N	11/09/89	1700	9500.0	19.0 U	2300.0	22.0 B	2.3	260.0	130000	27.0		
BMW-4B	N	11/09/89	1730	4000.0	19.0 U	630.0	19.0 B	3.5	410.0	210000	25.0		
BMW-4T	N	11/15/89	1315	900.0 J	19.0 U	130.0	24.0 B	1.0 U	140.0 EJ	310000	8.0 U		
BMW-4T	R	11/15/89	1330	7200.0	19.0 U	1700.0	12.0 B	2.1	250.0 EJ	220000	29.0		
BMW-4T	WB	11/15/89	1345	220.0 J	19.0 U	3.0 UJ	17.0 B	1.0 U	0.1 UME	1900 B	8.0 U		
BMW-4T	BB	11/15/89	1400	170.0 BJ	19.0 U	3.0 U	12.0 U	1.0 U	0.6 EJU	2100 B	8.0 B		
BMW-4T	BFS	11/15/89	1415	300.0 J	14.0 U	62.0	130.0 B	39.0	250.0 EJ	2200 B	160.0		
BMW-6B	N	11/09/89	1215	1300.0	19.0 U	3.0 U	13.0 B	3.0	210.0	280000	20.0		
CT-84-10	N	11/10/89	1130	1900.0	19.0 U	1100.0	25.0 B	1.0 U	140.0	120000	8.0 U		
CT-84-10	R	11/10/89	1145	1900.0	19.0 U	2000.0 S	25.0 B	1.0 U	150.0	130000	8.0 U		
CT-84-10	BB	11/10/89	1200	210.0 J	19.0 U	3.0 UJ	12.0 U	1.0 U	0.7 LJ	160 U	8.0 U		
CT-84-10	WB	11/10/89	1215	210.0 J	19.0 U	3.0 U	12.0 U	1.0 U	0.9 J	160 U	8.0 U		
CT-84-10	BFS	11/10/89	1230	370.0 J	14.0 U	38.0	120.0 B	37.0	220.0	160 U	150.0		
MF-04	N	11/09/89	1415	220.0 J	19.0 U	3.0 UJ	44.0 B	1.0 U	1.4 J	130000	8.0 U		
MP-07	N	11/15/89	1100	140.0 BJ	19.0 U	3.8 WJ	51.0 B	1.0 U	2.2 SEJ	110000	8.0 U		

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3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = spike sample recovery was not within control addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

DISSOLVED METALS: continued

Revision level: FINAL												
Sample I.D.	Sample Type	Sample Date	Sample Time	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium
AI-W-01	N	11/15/89	1120									
AMC-12	N	11/08/89	1100	790.0	1600.0	11000	0.4 UNJ	98000 EJ	120000 EJ		250.0	18000
AMC-13	N	08/24/89	1800	2.6 U	1.1 UEJ	3480 EJ	0.5 UNJ	53600	19500	0.20 U	72.5	5420 EJ
AMC-13	N	11/06/89	1540	18.0 B	12.0 BJ	4300 EJ	0.4 UNJ	53000	18000 EJ		51.0	7700 EJ
AMC-23	N	11/08/89	1245	13.0 B	100.0 J	1900	0.4 UEJ	86000 EJ	95 EJ		11.0	13000
AMC-24	N	11/08/89	1315	18.0 B	16.0 BJ	2600	0.4 UEJ	43000 EJ	1300 EJ		4.6	8800
BMW-10A	N	11/09/89	1420	42.0 B	14000.0 NJ	94 BJ	2.7 WJ	31000 J	33000		20.0	7000
BMW-4A	N	11/09/89	1700	72.0	25000.0 NJ	100000	260.0	35000 J	34000		37.0	6700
BMW-4B	N	11/09/89	1730	120.0	11000.0 NJ	220000	63.0	49000 J	40000		58.0	10000
BMW-4T	N	11/15/89	1315	59.0	7600.0 NJ	200000	0.4 UNJ	54000 EJ	57000		23.0	7800
BMW-4T	R	11/15/89	1330	28.0 B	20000.0 NJ	170000	250.0 J	47000 EJ	50000		39.0	5700
BMW-4T	WB	11/15/89	1345	16.0 B	6.0 UNJ	64 BJ	0.4 UNJ	1900 BEJ	6 U		2.7	1100 B
BMW-4T	BB	11/15/89	1400	15.0 B	6.0 UNJ	110 J	0.4 UNJ	1700 BEJ	6 U		2.0 U	600 U
BMW-4T	BFS	11/15/89	1415	88.0	210.0 NJ	180 J	190.0 J	1700 BEJ	220		65.0	1100 B
BMW-6B	N	11/09/89	1215	150.0	11000.0 NJ	15000	0.4 UEJ	89000 J	43000		78.0	8200
CT-84-10	N	11/10/89	1130	28.0 B	8200.0 NJ	17000	400.0	28000 J	12000		8.0	3700 B
CT-84-10	R	11/10/89	1145	23.0 B	7800.0 NJ	17000	390.0	26000 J	13000		10.0	3900 B
CT-84-10	BB	11/10/89	1200	15.0 B	6.0 UNJ	15 BJ	1.1 WJ	1100 BJ	7 BJ		2.0 U	600 U
CT-84-10	WB	11/10/89	1215	12.0 U	6.0 UNJ	55 BJ	0.9 BWJ	1100 BJ	6 UJ		2.0 U	900 B
CT-84-10	BFS	11/10/89	1230	77.0	180.0 NJ	120 J	190.0 S	1100 BJ	180 N		62.0	960 B
MF-04	N	11/09/89	1415	20.0 B	6.0 UNJ	52 BJ	0.4 UNJ	51000 J	41 J		2.0 U	6300
MP-07	N	11/15/89	1100	12.0 U	6.0 UNJ	69 BJ	0.4 UNJ	30000 EJ	1600		2.0 B	6100

NOTES:

- 1) Units are ug/L unless otherwise noted.
- 2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
- 3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (the instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.
- 4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL DISSOLVED METALS: continued

04/10/90

COMMON IONS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Chloride (mg/L)	Fluoride (mg/L)	Nitrate and Nitrite as N (mg/L)
AI-W-01	N	11/15/89	1120									
AMC-12	N	11/08/89	1100	5.0 UWJ	20.0	39000 EJ	2200.0	6.0 U	90000	23.9	0.10 U	1.15 NJ
AMC-13	N	08/24/89	1800	15.6 NJ	1.0 UWNJ	25800	2.0 UWNJ	7.2 B	3560	19.0	2.29	0.01 UJJ
AMC-13	N	11/06/89	1540	5.0 U	0.2 U	29000	330.0	6.0 U	2800	14.9	0.23	0.57
AMC-23	N	11/08/89	1245	5.0 UWJ	0.2 ULJ	86000 EJ	9.0 U	10.0 B	3600	12.5	0.10 U	0.59 J
AMC-24	N	11/08/89	1315	5.0 UEJ	0.2 U	48000 EJ	9.0 U	6.0 U	330	67.8	1.14	5.50
BMW-10A	N	11/09/89	1420	5.0 UJJ	0.2 UJJ	45000	390.0	6.0 U	73000 NJ	14.0	0.10 U	2.05
BMW-4A	N	11/09/89	1700	5.0 UEUJ	0.2 UJJ	100000	380.0	37.0 B	86000 NJ	21.0	1.77	0.68 J
BMW-4B	N	11/09/89	1730	5.0 UEUJ	0.2 UJJ	58000	360.0	6.0 U	120000 NJ	23.3	0.93	0.01 UJJ
BMW-4T	N	11/15/89	1315	5.0 UENJ	0.4	73000 EJ	560.0	6.0 U	64000	17.9	1.22	0.01 UJJ
BMW-4T	R	11/15/89	1330	5.0 UENJ	2.3	76000 EJ	470.0	43.0 B	95000	23.4	2.00	0.01 UJJ
BMW-4T	WB	11/15/89	1345	5.0 UWNJ	0.2 UJJ	1500 BEJ	9.0 U	7.0 B	18 BJ	0.8	0.10 U	0.01 UJJ
BMW-4T	BB	11/15/89	1400	5.0 UWNJ	0.2 UJJ	1100 BEJ	9.0 U	6.0 U	20 BJ	0.9	0.50 U	0.01 UJJ
BMW-4T	BFS	11/15/89	1415	32.0 NJ	7.8 LJ	930 BEJ	66.0	190.0	220	330.0	11.70	4.80
BMW-6B	N	11/09/89	1215	5.0 UEUJ	0.2 UJJ	93000	480.0	6.0 U	73000 NJ	65.3	1.74	5.01
CT-84-10	N	11/10/89	1130	5.0 UEUJ	0.2 UJJ	76000	130.0	6.0 U	51000 NJ	29.1	0.62	0.01 UJJ
CT-84-10	R	11/10/89	1145	5.0 UJJ	0.3 LJ	79000	150.0	15.0 B	53000 NJ	31.4	0.60	0.01 UJJ
CT-84-10	BB	11/10/89	1200	5.0 UJJ	0.2 UJJ	210 U	9.0 U	9.0 B	5 UNJU	0.5 U	0.10 U	0.15 J
CT-84-10	WB	11/10/89	1215	6.3 LJ	0.2 UJJ	210 U	9.0 U	6.0 U	6 BNJ	0.5 U	0.10 U	0.34 J
CT-84-10	BFS	11/10/89	1230	63.0 LJ	12.0	210 U	55.0	180.0	220 NJ	354.0	11.20	4.98
MF-04	N	11/09/89	1415	5.0 UJJ	0.2 UJJ	120000	9.0 U	6.0 U	47 NJ	137.0	0.10 U	14.30
MP-07	N	11/15/89	1100	5.0 UWNJ	0.2 UJJ	40000 EJ	15.0	11.0 B	35 J	18.3	0.10 U	0.95 NJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = spike sample recovery was not within control limits, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicate parameters not determined or not reported.

04/10/90

Revision level: FINAL OTHER PARAMETERS:

Sample I.D.	Sample Type	Sample Date	Sample Time	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Hardness (mg/L) (5)	Comments
AI-W-01	N	11/15/89	1120	256.0	301		
AMC-12	N	11/08/89	1100	2380.0	27 J	1253	
AMC-13	N	08/24/89	1800	910.0	31	793	
AMC-13	N	11/06/89	1540	795.0	3 U	743	
AMC-23	N	11/08/89	1245	1400.0 J	131 J	1253	
AMC-24	N	11/08/89	1315	642.0 J	104 J	527	
BMW-10A	N	11/09/89	1420	579.0	128 J	402	
BMW-4A	N	11/09/89	1700	1630.0	3 UJJ	469	
BMW-4B	N	11/09/89	1730	2180.0	3 UJJ	726	
BMW-4T	N	11/15/89	1315	1860.0	3 UJJ	996	
BMW-4T	R	11/15/89	1330	1820.0	3 UJJ	743	
BMW-4T	WB	11/15/89	1345	2.9 J	10 J	13	
BMW-4T	BB	11/15/89	1400	3.0 J	10 J	12	
BMW-4T	BFS	11/15/89	1415	672.0	268	460	
BMW-68	N	11/09/89	1215	1860.0	34 J	1066	
CT-84-10	N	11/10/89	1130	1170.0	3 UJJ	415	
CT-84-10	R	11/10/89	1145	1200.0	3 UJJ	432	
CT-84-10	BB	11/10/89	1200	0.5 UJJ	24 J	5	
CT-84-10	WB	11/10/89	1215	2.4 J	3 UJJ	5	
CT-84-10	BFS	11/10/89	1230	249.0	429	462	
MF-04	N	11/09/89	1415	199.0	473	535	
MP-07	N	11/15/89	1100	354.0	238	398	

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met. W = post digestion spike for furnace AA was not within control limits.

4) Blank values indicated parameters not determined or not reported.

5) Hardness calculated from concentrations of calcium and magnesium. [Hardness = 2.497*Ca + 4.118*Mg]

APPENDIX B-5

Survey and Water Level Data

WELL AI-GW-GS-07

MEASURING POINT ELEVATION: 5479.39

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	24.50	5454.89
SEP/89	24.28	5455.61
OCT/89	24.34	5455.55
NOV/89	24.63	5455.26
DEC/89	24.29	5455.60
JAN/90	24.72	5455.17

WELL AI-GW-GS-08

MEASURING POINT ELEVATION: 5458.02

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	10.00	5448.02
SEP/89	9.90	5448.12
OCT/89	9.91	5448.11
NOV/89	10.07	5447.95
DEC/89	9.90	5448.12
JAN/90	10.07	5447.95

WELL AI-GW-GS-09

MEASURING POINT ELEVATION: 5457.70

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.95	5447.75
SEP/89	9.86	5447.84
OCT/89	9.92	5447.78
NOV/89	10.07	5447.63
DEC/89	9.93	5447.77
JAN/90	10.10	5447.60

WELL AI-GW-GS-10D

MEASURING POINT ELEVATION: 5477.43

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	21.08	5456.35
SEP/89	20.86	5456.57
OCT/89	20.99	5456.44
NOV/89	21.40	5456.03
DEC/89	21.07	5456.36
JAN/90	21.44	5455.99

WELL AI-GW-GS-10S

MEASURING POINT ELEVATION: 5477.43

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	19.00	5458.43
SEP/89	19.03	5458.40
OCT/89	19.16	5458.27
NOV/89	19.68	5457.75
DEC/89	19.40	5458.03
JAN/90	19.65	5458.08

WELL AI-GW-GS-11

MEASURING POINT ELEVATION: 5457.38

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	10.82	5446.56
SEP/89	10.60	5446.78
OCT/89	10.79	5446.59
NOV/89	11.04	5446.34
DEC/89	10.91	5446.47
JAN/90	11.01	5446.37

WELL AI-GW-GS-12

MEASURING POINT ELEVATION: 5442.67

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.96	5434.71
SEP/89	8.33	5434.34
OCT/89	8.75	5433.92
NOV/89	9.13	5433.54
DEC/89	9.17	5433.50
JAN/90	9.35	5433.32

WELL AI-GW-GS-13A

MEASURING POINT ELEVATION: 5441.15

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	5.10	5436.05
SEP/89	INACCESSIBLE	INACCESSIBLE
OCT/89	INACCESSIBLE	INACCESSIBLE
NOV/89	5.96	5435.19
DEC/89	5.75	5435.40
JAN/90	5.87	5435.28

WELL AI-GW-GS-13B

MEASURING POINT ELEVATION: 5440.64

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89		
SEP/89	4.83	5435.81
OCT/89	5.01	5435.61
NOV/89	5.33	5435.31
DEC/89	5.28	5435.36
JAN/90	5.36	5435.28

WELL AI-GW-GS-14

MEASURING POINT ELEVATION: 5455.23

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.92	5447.31
SEP/89	7.98	5447.25
OCT/89	8.13	5447.10
NOV/89	8.33	5446.90
DEC/89	8.18	5447.05
JAN/90	8.31	5446.92

WELL AI-GW-GS-15D

MEASURING POINT ELEVATION: 5445.28

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.99	5435.29
SEP/89	8.74	5436.54
OCT/89	8.97	5436.31
NOV/89	9.16	5436.12
DEC/89	9.04	5436.24
JAN/90	9.07	5436.21

WELL AI-GW-GS-15S

MEASURING POINT ELEVATION: 5445.28

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.29	5435.99
SEP/89	9.12	5436.16
OCT/89	9.19	5436.09
NOV/89	9.35	5435.93
DEC/89	9.22	5436.06
JAN/90	9.32	5435.96

WELL AI-GW-GS-16

MEASURING POINT ELEVATION: 5440.37

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	8.55	5431.82
SEP/89	8.76	5431.61
OCT/89	8.97	5431.40
NOV/89	9.27	5431.10
DEC/89	9.24	5431.13
JAN/90	9.40	5430.97

WELL AI-GW-GS-17D

MEASURING POINT ELEVATION: 5434.10

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	3.18	5430.92
SEP/89	3.16	5430.94
OCT/89	3.16	5430.94
NOV/89	3.37	5430.73
DEC/89	FROZEN	FROZEN
JAN/90	FROZEN	FROZEN

WELL AI-GW-GS-17S

MEASURING POINT ELEVATION: 5434.71

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	3.79	5430.92
SEP/89	3.78	5430.93
OCT/89	3.79	5430.92
NOV/89	4.04	5430.67
DEC/89	FROZEN	FROZEN
JAN/90	FROZEN	FROZEN

WELL AI-GW-GS-18

MEASURING POINT ELEVATION: 5439.08

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.99	5429.09
SEP/89	10.07	5429.01
OCT/89	10.04	5429.04
NOV/89	10.15	5428.93
DEC/89	9.97	5429.11
JAN/90	9.95	5429.13

WELL AI-GW-GS-19

MEASURING POINT ELEVATION: 5445.26

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	12.40	5432.86
SEP/89	12.84	5432.42
OCT/89	13.20	5432.06
NOV/89	13.46	5431.80
DEC/89	13.30	5431.86
JAN/90	13.50	5431.76

WELL AI-GW-GS-20

MEASURING POINT ELEVATION: 5457.20

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	17.09	5440.11
SEP/89	17.98	5439.22
OCT/89	18.60	5438.60
NOV/89	19.17	5438.03
DEC/89	19.41	5437.79
JAN/90	19.61	5437.59

WELL AI-GW-GS-21D

MEASURING POINT ELEVATION: 5447.75

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	13.02	5434.73
SEP/89	13.07	5434.68
OCT/89	13.22	5434.53
NOV/89	13.47	5434.28
DEC/89	13.28	5434.47
JAN/90	13.32	5434.43

WELL AI-GW-GS-21S

MEASURING POINT ELEVATION: 5447.61

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	12.83	5434.78
SEP/89	12.81	5434.80
OCT/89	13.01	5434.60
NOV/89	13.17	5434.44
DEC/89	13.05	5434.56
JAN/90	13.10	5434.51

WELL AI-GW-GS-22

MEASURING POINT ELEVATION: 5435.91

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.71	5428.20
SEP/89	7.61	5428.30
OCT/89	7.60	5428.31
NOV/89	7.80	5428.11
DEC/89	7.69	5428.22
JAN/90	7.79	5428.12

WELL AI-GW-GS-23

MEASURING POINT ELEVATION: 5437.16

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	15.27	5421.89
SEP/89	15.01	5422.15
OCT/89	14.89	5422.27
NOV/89	15.12	5422.04
DEC/89	14.74	5422.42
JAN/90	14.77	5422.39

WELL AI-GW-GS-24D

MEASURING POINT ELEVATION: 5433.54

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	6.67	5426.87
SEP/89	8.48	5425.06
OCT/89	6.75	5426.79
NOV/89	7.16	5426.38
DEC/89	6.94	5426.60
JAN/90	7.02	5426.52

WELL AI-GW-GS-24S

MEASURING POINT ELEVATION: 5434.10

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.12	5426.98
SEP/89	8.85	5425.25
OCT/89	7.28	5426.82
NOV/89	7.60	5426.50
DEC/89	7.46	5426.64
JAN/90	7.56	5426.54

WELL AI-GW-GS-25

MEASURING POINT ELEVATION: 5427.76

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	4.62	5423.14
SEP/89	5.41	5422.35
OCT/89	4.70	5423.06
NOV/89	4.90	5422.86
DEC/89	4.90	5422.86
JAN/90	4.90	5422.86

WELL AI-GW-GS-26

MEASURING POINT ELEVATION: 5425.67

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.92	5415.75
SEP/89	9.42	5416.25
OCT/89	9.75	5415.92
NOV/89	9.95	5415.72
DEC/89	9.83	5415.84
JAN/90	9.92	5415.75

WELL AI-GW-GS-27D

MEASURING POINT ELEVATION: 5418.99

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	6.03	5412.96
SEP/89	5.49	5413.50
OCT/89	5.59	5413.40
NOV/89	5.81	5413.18
DEC/89	5.75	5413.24
JAN/90	5.83	5413.16

WELL AI-GW-GS-27S

MEASURING POINT ELEVATION: 5419.91

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.14	5412.77
SEP/89	6.52	5413.39
OCT/89	6.61	5413.30
NOV/89	6.83	5413.08
DEC/89	6.77	5413.14
JAN/90	6.85	5413.06

WELL AI-GW-GS-28

MEASURING POINT ELEVATION: 5446.34

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	4.50	5441.84
SEP/89	4.47	5441.87
OCT/89	4.47	5441.87
NOV/89	4.57	5441.77
DEC/89	4.55	5441.79
JAN/90	4.57	5441.77

WELL AI-GW-GS-29D

MEASURING POINT ELEVATION: 5443.22

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	4.85	5438.37
SEP/89	4.53	5438.69
OCT/89	4.52	5438.70
NOV/89	4.67	5438.55
DEC/89	4.69	5438.53
JAN/90	4.68	5438.54

WELL AI-GW-GS-29S

MEASURING POINT ELEVATION: 5443.26

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	4.80	5438.46
SEP/89	5.06	5438.20
OCT/89	5.08	5438.18
NOV/89	5.20	5438.06
DEC/89	5.08	5438.18
JAN/90	5.20	5438.06

WELL AI-GW-GS-30D

MEASURING POINT ELEVATION: 5456.25

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.35	5446.90
SEP/89	9.17	5447.08
OCT/89	9.20	5447.05
NOV/89	9.41	5446.97
DEC/89	9.28	5446.97
JAN/90	9.38	5446.87

WELL AI-GW-GS-30S

MEASURING POINT ELEVATION: 5456.52

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.42	5447.10
SEP/89	9.29	5447.23
OCT/89	9.42	5447.10
NOV/89	9.63	5446.89
DEC/89	9.48	5447.04
JAN/90	9.53	5446.99

WELL AI-GW-GS-31D

MEASURING POINT ELEVATION: 5451.80

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	4.99	5446.81
SEP/89	4.94	5446.86
OCT/89	5.05	5446.75
NOV/89	5.24	5446.56
DEC/89	5.12	5446.68
JAN/90	5.21	5446.59

WELL AI-GW-GS-31S

MEASURING POINT ELEVATION: 5451.64

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	5.09	5446.55
SEP/89	5.01	5446.63
OCT/89	5.12	5446.52
NOV/89	5.29	5446.35
DEC/89	5.21	5446.43
JAN/90	5.31	5446.33

WELL AI-GW-GS-32

MEASURING POINT ELEVATION: 5450.80

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	3.75	5447.05
SEP/89	3.57	5447.23
OCT/89	3.52	5447.28
NOV/89	3.74	5447.06
DEC/89	3.79	5447.01
JAN/90	3.80	5447.00

WELL AI-GW-GS-33

MEASURING POINT ELEVATION: 5474.90

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	26.03	5448.87
SEP/89	25.55	5449.35
OCT/89	25.38	5449.52
NOV/89	25.54	5449.45
DEC/89	25.04	5449.86
JAN/90	25.39	5449.51

WELL AI-GW-GS-34D

MEASURING POINT ELEVATION: 5434.51

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	7.08	5427.43
SEP/89	7.97	5426.54
OCT/89	7.08	5427.43
NOV/89	7.32	5427.19
DEC/89	7.19	5427.32
JAN/90	7.29	5427.22

WELL AI-GW-GS-34S

MEASURING POINT ELEVATION: 5434.57

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	6.93	5427.64
SEP/89	7.71	5426.86
OCT/89	6.95	5427.62
NOV/89	7.14	5427.43
DEC/89	7.02	5427.55
JAN/90	7.12	5427.45

WELL AI-GW-GS-35D

MEASURING POINT ELEVATION: 5465.56

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	12.75	5452.81
SEP/89	12.47	5453.09
OCT/89	12.49	5453.07
NOV/89	12.69	5452.87
DEC/89	12.50	5453.06
JAN/90	12.69	5452.87

WELL AI-GW-GS-35S

MEASURING POINT ELEVATION: 5466.61

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	13.49	5453.12
SEP/89	12.74	5453.87
OCT/89	12.75	5453.86
NOV/89	12.80	5453.81
DEC/89	12.54	5454.07
JAN/90	12.76	5453.85

WELL AI-GW-GS-40

MEASURING POINT ELEVATION: 5481.30

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	22.24	5459.06
SEP/89	21.98	5459.32
OCT/89	22.10	5459.20
NOV/89	22.45	5458.85
DEC/89	22.09	5459.21
JAN/90	22.53	5458.77

WELL AI-GW-GS-41D

MEASURING POINT ELEVATION: 5491.34

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	33.54	5457.80
SEP/89	33.34	5458.00
OCT/89	33.39	5457.95
NOV/89	33.88	5457.46
DEC/89	33.44	5457.90
JAN/90	33.87	5457.77

WELL AI-GW-GS-41S

MEASURING POINT ELEVATION: 5491.88

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	33.50	5458.38
SEP/89	33.32	5458.56
OCT/89	33.34	5458.54
NOV/89	33.78	5458.10
DEC/89	33.40	5458.48
JAN/90	33.85	5458.03

WELL AI-GW-GS-42D

MEASURING POINT ELEVATION: 5471.11

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	14.05	5457.06
SEP/89	14.05	5457.06
OCT/89	14.11	5457.00
NOV/89	14.44	5456.67
DEC/89	14.29	5456.82
JAN/90	14.53	5456.58

WELL AI-GW-GS-42S

MEASURING POINT ELEVATION: 5471.37

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	13.88	5457.49
SEP/89	13.76	5457.61
OCT/89	13.82	5457.55
NOV/89	14.16	5457.21
DEC/89	14.01	5457.36
JAN/90	14.24	5457.13

WELL AI-GW-GS-43D

MEASURING POINT ELEVATION: 5474.98

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	17.45	5457.53
SEP/89	17.54	5457.44
OCT/89	17.69	5457.29
NOV/89	17.75	5457.23
DEC/89	17.93	5457.05
JAN/90	FROZEN LOCK	

WELL AI-GW-GS-43S

MEASURING POINT ELEVATION: 5475.04

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	17.30	5457.74
SEP/89	17.30	5457.74
OCT/89	17.40	5457.64
NOV/89	17.35	5457.69
DEC/89	17.65	5457.39
JAN/90	FROZEN LOCK	

WELL AI-GW-GS-44D

MEASURING POINT ELEVATION: 5476.24

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	19.67	5456.57
SEP/89	19.48	5456.76
OCT/89	19.67	5456.57
NOV/89	20.06	5456.18
DEC/89	19.83	5456.41
JAN/90	20.21	5456.03

WELL AI-GW-GS-44S

MEASURING POINT ELEVATION: 5476.24

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	19.03	5457.21
SEP/89	18.75	5457.49
OCT/89	19.02	5457.22
NOV/89	19.45	5456.79
DEC/89	19.22	5447.02
JAN/90	19.73	5456.51

WELL AI-GW-GS-45

MEASURING POINT ELEVATION: 5490.86

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	31.77	5459.09
SEP/89	31.41	5459.45
OCT/89	31.36	5459.50
NOV/89	31.64	5459.22
DEC/89	31.24	5459.62
JAN/90	31.67	5459.19

WELL AI-GW-GS-46D

MEASURING POINT ELEVATION: 5484.03

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	24.85	5459.18
SEP/89	24.44	5459.59
OCT/89	24.64	5459.39
NOV/89	24.98	5459.05
DEC/89	24.68	5459.35
JAN/90	25.16	5458.87

WELL AI-GW-GS-46S

MEASURING POINT ELEVATION: 5483.76

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	25.25	5458.51
SEP/89	24.87	5458.89
OCT/89	24.97	5458.79
NOV/89	25.39	5458.37
DEC/89	25.14	5458.62
JAN/90	25.64	5458.12

WELL AI-GW-GS-50

MEASURING POINT ELEVATION: 5475.70

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	24.29	5451.41
SEP/89	24.99	5450.71
OCT/89	24.99	5450.71
NOV/89	24.64	5451.06
DEC/89	24.55	5451.15
JAN/90	24.99	5440.71

WELL AI-DW-01

MEASURING POINT ELEVATION: 5481.81

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	23.20	5458.61
SEP/89	23.04	5458.77
OCT/89	23.28	5458.53
NOV/89	23.70	5458.11
DEC/89	23.47	5458.34
JAN/90	23.91	5457.90

WELL AI-DW-02

MEASURING POINT ELEVATION: 5499.46

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	38.00	5461.46
SEP/89	37.34	5462.12
OCT/89		
NOV/89	37.76	5461.73
DEC/89	37.99	5461.47
JAN/90	37.89	5461.57

WELL AI-PW-01

MEASURING POINT ELEVATION: 5479.70

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
NOV/89	21.93	5457.77
DEC/89	21.96	5457.74
JAN/90	21.92	5457.78

WELL AI-PW-02

MEASURING POINT ELEVATION: 5449.81

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
NOV/89	2.71	5447.10
DEC/89	2.65	5447.16
JAN/90	2.56	5447.25

WELL AI-PW-03

MEASURING POINT ELEVATION: 5439.79

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
NOV/89	8.97	5430.82
DEC/89	8.87	5430.92
JAN/90	9.06	5430.73

WELL AI-PW-04

MEASURING POINT ELEVATION: 5427.97

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89		
SEP/89	7.19	5420.78
OCT/89	7.03	5420.94
NOV/89	7.26	5420.71
DEC/89	7.09	5420.88
JAN/90	6.96	5421.01

WELL AMC-6

MEASURING POINT ELEVATION: 5493.36

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	34.20	5459.16
SEP/89	33.89	5459.47
OCT/89		
NOV/89	34.27	5459.09
DEC/89	33.77	5459.59
JAN/90	34.20	5459.16

WELL AMC-8

MEASURING POINT ELEVATION: 5525.61

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	62.20	5463.41
SEP/89	61.85	5463.76
OCT/89		
NOV/89	62.28	5463.33
DEC/89	61.62	5463.99
JAN/90	62.10	5463.51

WELL AMC-12

MEASURING POINT ELEVATION: 5480.10

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	21.50	5458.60
SEP/89	21.33	5458.77
OCT/89		
NOV/89	21.73	5458.37
DEC/89	21.49	5458.61
JAN/90	21.87	5458.23

WELL AMC-13

MEASURING POINT ELEVATION: 5475.28

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	19.70	5455.58
SEP/89	19.70	5455.58
OCT/89	19.88	5455.40
NOV/89	20.32	5455.45
DEC/89	20.04	5455.73
JAN/90	20.49	5455.28

WELL AMC-23

MEASURING POINT ELEVATION: 5448.29

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	5.10	5443.19
SEP/89	5.19	5443.10
OCT/89		
NOV/89	5.30	5442.99
DEC/89	5.13	5443.16
JAN/90	4.99	5443.30

WELL AMC-24

MEASURING POINT ELEVATION: 5452.06

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	9.10	5442.96
SEP/89	9.01	5443.05
OCT/89		
NOV/89	9.14	5442.92
DEC/89	8.98	5443.08
JAN/90	9.07	5442.99

WELL MP-04

MEASURING POINT ELEVATION: 5434.00

MEASURING POINT DESCRIPTION: Top of Steel Casing, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89		
SEP/89	4.31	5429.69
OCT/89	4.30	5429.70
NOV/89	4.40	5429.60
DEC/89	4.40	5429.60
JAN/90	4.42	5429.58

WELL NE-2

MEASURING POINT ELEVATION: 5435.12

MEASURING POINT DESCRIPTION: Top of PVC, North Quadrant

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89		
SEP/89	12.39	5422.73
OCT/89	12.20	5422.92
NOV/89	12.40	5422.72
DEC/89	12.21	5422.91
JAN/90	12.28	5422.84

WELL BMW-4A

MEASURING POINT ELEVATION: 5418.25

MEASURING POINT DESCRIPTION: Top of PVC, At Designated Mark

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	2.67	5415.58
SEP/89	1.98	5416.27
OCT/89	1.99	5416.26
NOV/89	3.05	5415.20
DEC/89	INACCESSIBLE	
JAN/90	INACCESSIBLE	

WELL BMW-4B

MEASURING POINT ELEVATION: 5419.34

MEASURING POINT DESCRIPTION: Top of PVC, At Designated Mark

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	3.95	5415.39
SEP/89	3.17	5416.17
OCT/89	3.28	5416.06
NOV/89	3.06	5416.28
DEC/89	3.38	5415.96
JAN/90	3.42	5415.92

WELL BMW-4T

MEASURING POINT ELEVATION: 5418.93

MEASURING POINT DESCRIPTION: Top of PVC, At Designated Mark

<u>DATE</u>	<u>DEPTH TO WATER</u>	<u>WATER LEVEL ELEVATION</u>
AUG/89	3.53	5415.40
SEP/89	2.92	5416.01
OCT/89	2.89	5416.04
NOV/89	3.46	5415.47
DEC/89	INACCESSIBLE	
JAN/90	INACCESSIBLE	

APPENDIX B-6

Aquifer Test Data

AQUIFER TEST DATA

WELL OBSERVED: AI-PW-01WELL TESTED: AI-PW-01PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/11-9/12/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract ABDBorehole Diam. (in) 6 Well Diam. (in) 5 Well Depth (ft) 45 Perforated Zones(s) (ft) 17 - 42
29 on GS-10S 19 - 29 on GS-10SDesc. of MP Top of Steel/Worth side Stick-up (ft) .38 SWL below MP (ft) 19.16 SWL below GS (ft) 18.78Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☒ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 23.5 Pump hp. & type 3/4 hp Sub Pump Depth (ft) _____Water Quality Sample Taken? yes no Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____
PW-01 - 9.81Avg. Discharge (gpm) 2.33 Test Duration (min) 911 Max WL Change (ft) GS-10S - .09 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	PW-01	GS-10S				
	HEAD	HEAD				Head measured with Datapod & Transducer
18:57:00	13.83	9.22				
19:00:00						Pump on at 19:00:00 9/7/89
19:30:00			2.16	4.30	1702	
19:40:00	7.80	9.18	2.16			
20:30:00	7.38	9.17	2.15			
21:00:00	7.26	9.16	2.05	4.72	1606	
22:00:00	7.11	9.15	1.97			PW-01 - Opened valve at 22:10:00
22:12:00	4.45	9.16	2.8			
22:16:00						PW-01 - Closed valve at 22:16:00
22:17:00			2.8			PW-01 - Closed at 22:17:00
22:20:00	3.52		2.56			PW-01 - Closed valve at 22:20:00
22:27:00	4.68	9.16	2.30			PW-01 - Closed valve at 22:27:00
23:08:00	4.94	9.16	2.27	4.76	1790	
00:00:00	4.72	9.16	2.13	4.78	1652	
01:09:00	4.60	9.15	2.22	4.78	1790	
02:08:00	4.52	9.16	2.27	4.82	1699	
03:09:00	4.48	9.17	2.31	4.78	1653	
03:22:00						
03:24:00						
04:06:00	4.35	9.17	2.19	4.75	2275	
04:15:00	4.29	9.17	2.18	4.77	2342	
05:08:00	4.29	9.17	2.30	4.78	2276	
06:05:00	4.22	9.17	2.30	4.77	2343	
06:55:00						
06:58:00						
07:11:00	4.14	9.17	2.30	4.76	2142	
08:08:00	4.09	9.13	2.27	4.77	2343	
09:08:00	4.02	9.14	2.42	4.76	2409	
10:08:00	3.97	9.15	2.21	4.78	2357	
10:22:00						PW-01 - Generator quit at 10:22:00

AQUIFER TEST DATA

WELL OBSERVED: AI-GW-GS-07WELL TESTED: AI-PW-01PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/11-9/12/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract ABDBorehole Diam. (in) 6 Well Diam. (in) 4 Well Depth (ft) 160 Perforated Zones(s) (ft) 130-160Desc. of MP Top of Steel/North side Stick-up (ft) 1.95 SWL below MP (ft) 14.40 SWL below GS (ft) 12.45Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 11.00 Pump hp. & type 3/4 hp Sub Pump Depth (ft) _____

Water Quality Sample Taken? yes no Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____

Avg. Discharge (gpm) 2.33 Test Duration (min) 911 Max WL Change (ft) .02 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
18:58:00	24.4	19:19:00	24.4				
19:00:00		19:20:00	24.4				Pump on at 19:00:00
19:00:30	24.4	19:25:00	24.4				
19:01:00	24.4	19:30:00	24.4				
19:02:30	24.4	19:35:00	24.4				
19:03:00	24.4	19:40:00	24.4				
19:03:30	24.4	19:45:00	24.4				
19:04:00	24.4	20:00:00	24.4				
19:04:30	24.4	20:30:00	24.4				
19:07:00	24.4	21:00:00	24.4				
19:07:30	24.4	22:00:00	24.4				
19:08:00	24.4	23:00:00	24.41				
19:08:30	24.4	00:00:00	24.41				
19:09:00	24.4	01:00:00	24.41				
19:09:30	24.4	03:00:00	24.41				
19:10:00	24.4	04:00:00	24.42				
19:11:00	24.4	04:59:00	24.41				
19:12:00	24.4	05:58:00	24.41				
19:13:00	24.4	07:03:00	24.41				
19:14:00	24.4	08:00:00	24.41				
19:15:00	24.4	08:59:00	24.41				
19:16:00	24.4	10:02:00	24.41				
19:17:00	24.4	10:22:00					Generator quit at 10:22:00
19:18:00	24.4	11:50:00	24.41				
		12:26:00	24.41				

AQUIFER TEST DATA

WELL OBSERVED: AI-GW-GS-100WELL TESTED: AI-PW-01PROJECT: SBC AREA I PHASE II RIPERSONNEL: Grady, ArmstrongTEST DATE: 9/11-9/12/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract ABDBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 109.38 Perforated Zones(s) (ft) 100-110Desc. of MP Top of Steel/North side Stick-up (ft) .38 SWL below MP (ft) 21.00 SWL below GS (ft) 20.62Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 11.00 Pump hp. & type 3/4 hp Sub Pump Depth (ft) _____

Water Quality Sample Taken? yes no Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____

Avg. Discharge (gpm) 2.33 Test Duration (min) 911 Max WL Change (ft) .03 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
18:58:00	21.01	19:19:00	21.02				
19:00:00		19:20:00	21.02				Pump on at 19:00:00
19:00:30	21.02	19:25:00	21.03				
19:01:00	21.02	19:30:00	21.03				
19:02:30	21.02	19:35:00	21.03				
19:03:00	21.02	19:40:00	21.03				
19:03:30	21.02	19:45:00	21.03				
19:04:00	21.02	20:00:00	21.03				
19:07:00	21.02	20:30:00	21.03				
19:07:30	21.02	21:00:00	21.03				
19:08:00	21.02	22:00:00	21.03				
19:08:30	21.02	23:00:00	21.03				
19:09:00	21.02	24:00:00	21.03				
19:09:30	21.02	01:00:00	21.03				
19:10:00	21.02	02:00:00	21.03				
19:11:00	21.02	03:00:00	21.03				
19:12:00	21.02	04:00:00	21.04				
19:13:00	21.02	04:59:00	21.04				
19:14:00	21.02	05:59:00	21.04				
19:15:00	21.02	07:05:00	21.04				
19:16:00	21.02	08:01:00	21.04				
19:17:00	21.02	09:00:00	21.04				
19:18:00	21.02	10:01:00	21.04				
		10:22:00					Generator quit at 10:22:00
		11:49:00	21.04				
		12:27:00	21.04				

AQUIFER TEST DATA

WELL OBSERVED: AI-PW-02 & AI-OB-1NWELL TESTED: AI-PW-02PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract CBABorehole Diam. (in) 6 Well Diam. (in) PW-02 - 5"
OB-1N - 2" Well Depth (ft) 15 Perforated Zones(s) (ft) PW-02 - 0-25Desc. of MP PW-02 - Top of Steel
OB-1N - Top of PVC Stick-up (ft) SWL below MP (ft) SWL below GS (ft) Aquifer Name SBC Alluvium Aquifer Description
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☒ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well ☐ Observation Well ☐ Slug Injection ☐ Other (Specify)
Drawdown Recovery or RemovalDistance of Observation Well from Pumping Well (ft) PW-02 - 0
OB-1N - 9.21 Pump hp. & type 3/4 hp Sub Pump Depth (ft) Water Quality Sample Taken? ☒ yes ☐ no Specific Conductance (umhos/cm @ 25°C) Temp (°C) Time Avg. Discharge (gpm) 8.0 Test Duration (min) 1440 Max WL Change (ft) .03 Transmissivity (gpd/ft) Storativity Hydraulic Conductivity (gpd/ft²) Specific Capacity (gpm/ft of drawdown) REMARKS

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	AI-PW-02	AI-OB-1N				
20:14:00	3.01	2.96				
20:20:00	12.88	8.81				PW-02 - Pump on at 20:20:00
20:20:40	10.41	8.81				
20:21:40	9.60	8.80				
20:22:40	9.44	8.79				
20:23:40	9.34	8.79				
20:24:40	9.31	8.79				
20:25:40	9.25	8.79				
20:26:40	9.21	8.78				
20:27:40	9.18	8.78				
20:28:40	9.15	8.77				
20:29:40	9.10	8.76				
20:30:40	9.07	8.76				
20:31:40	9.07	8.76				
20:32:40	9.07	8.76				
20:33:40	9.04	8.75				
20:34:40	9.01	8.74				
20:35:40	9.01	8.74				
20:36:40	9.01	8.73				
20:37:40	9.01	8.72				
20:38:40	8.99	8.71				
20:39:00	9.00	8.71				
20:40:40	9.01	8.71				
20:45:40	8.96	8.67				
20:50:40	8.88	8.64				
21:00:00	8.81	8.58				

AQUIFER TEST DATA

WELL OBSERVED: AI-PW-02WELL TESTED: AI-PW-02PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract BCD
 Borehole Diam. (in) 6 Well Diam. (in) PW-02 - Well Depth (ft) PW-02 - 25 Perforated Zones(s) (ft) PW-02 - 0-25
 Desc. of MP Top of Steel OB-1N - 1.47 OB-1N - 2.96 OB-1N - 1.64
 Stick-up (ft) PW-02 - 1.32 SWL below MP (ft) PW-02 - 3.01 SWL below GS (ft) PW-02 - 1.61
 Aquifer Name SBC Alluvium Aquifer Description Alluvium
 (Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: Pumping Well Drawdown Pumping Well Recovery Bailer Recovery Hvorslev Test
 Observation Well Observation Well Slug Injection Other (Specify)
 Drawdown Recovery or Removal

Distance of Observation Well from Pumping Well (ft) 9.2 Pump hp. & type 3/4 hp Sub Pump Depth (ft) Water Quality Sample Taken? yes no Specific Conductance ($\mu\text{mhos/cm}$ @ 25°C) Temp (°C) Time Avg. Discharge (gpm) 8.0 Test Duration (min) 1440 Max WL Change (ft) PW-02 - 4.64 Transmissivity (gpd/ft) Storativity Hydraulic Conductivity (gpd/ft²) Specific Capacity (gpm/ft of drawdown) REMARKS

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	AI-PW-02	AI-OB-1N				
	HEAD	HEAD				Head measured with Datapod & Transducers
20:19:00	12.82	8.81	8.2			
20:20:00						Pump on at 20:20:00 9/7/89
22:00:00			8.2			
23:00:00	8.35	8.07	7.96			
00:01:00	8.22	7.99	7.83	5.73	26.72	
01:10:00	8.12	7.90	7.89	6.38	17.71	
01:15:00			9.18			
01:22:00			8.2			Reset Q - Reduced
01:31:00	8.03	7.89	8.2			
02:25:00	8.04	7.88	8.04	6.37	26.57	
03:01:00	8.00	7.86	8.11	6.41	26.57	
04:26:00	8. -8	7.84	7.96	6.45	25.84	
06:01:00	7.96	7.80	8.04	6.44	24.36	
07:05:00	8.04	7.78	7.89	6.37	26.32	
08:06:00	8.01	7.76	7.82	6.35	24.06	
09:05:00	8.03	7.75	7.76	6.41	24.81	
09:57:00	8.00	7.73	7.89	6.37	25.42	
11:00:00	8.00	7.71	7.96	6.41	24.82	
12:00:00	8.06	7.70	7.82	6.37	25.10	
12:55:00	8.06	7.71	7.89	6.38	24.36	
14:00:00	8.03	7.69	7.89	6.38	24.73	
15:16:00	8.12	7.67	7.89	6.37	24.07	
16:01:00	8.09	7.68	7.83	6.38	24.06	
17:08:00	8.12	7.67	7.76	6.41	22.56	
18:08:00	8.12	7.66	7.69	6.44	20.67	
19:01:00	8.18	7.66	7.83	6.39	24.07	
20:20:00						Pump off at 20:20:00 9/8/89

AQUIFER TEST DATA

WELL OBSERVED: AI-GW-GS-32WELL TESTED: AI-PW-02PROJECT: SBC AREA I PHASE II RIPERSONNEL: Grady, ArmstrongTEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract BCDBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 37 Perforated Zones(s) (ft) 27 - 37Desc. of MP Top of PVC/North side Stick-up (ft) 2.11 SWL below MP (ft) 3.64 SWL below GS (ft) 1.53Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☒ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 3.5 Pump hp. & type 3/4 hp Sub Pump Depth (ft) _____Water Quality Sample Taken? ☒ yes ☐ no Specific Conductance ($\mu\text{mhos/cm}$ @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 8 Test Duration (min) 1440 Max WL Change (ft) .31 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
20:15:00	3.69	22:06:30	3.95				
20:20:00							Pump on at 20:20:00 9/7/89
20:20:30	3.72	22:21:20	3.95				
20:22:00	3.72	22:55:00	3.95				
20:24:00	3.75	23:35:00	3.95				
20:26:00	3.77	23:59:00	3.96				
20:28:00	3.79	01:03:00	3.96				
20:30:00	3.79	02:12:00	3.97				
20:32:00	3.80	02:52:00	3.97				
20:34:00	3.62	04:05:00	3.97				
20:36:00	3.83	05:50:00	3.97				
20:38:00	3.85	06:50:00	3.97				
20:41:00	3.86	07:49:00	3.99				
20:43:00	3.87	08:51:00	3.99				
20:45:00	3.87	09:50:00	4.00				
20:48:30	3.87	10:50:00	3.99				
20:53:30	3.88	11:51:00	3.99				
20:56:30	3.89	12:52:00	4.00				
21:01:30	3.88	13:50:00	4.00				
21:06:30	3.91	15:01:00	3.97				
21:11:30	3.91	15:51:00	3.97				
21:16:30	3.91	16:58:00	3.98				
21:21:30	3.91	18:00:00	3.78				
21:36:30	3.93	18:52:00	3.98				
21:51:30	3.95	20:02:00	4.00				
		20:20:00					Pump off at 20:20:00 9/8/89

AQUIFER TEST DATA

WELL OBSERVED: A1-2-08-1EWELL TESTED: A1-PW-02PROJECT: SBC AREA I PHASE II RIPERSONNEL: Grady, ArmstrongTEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract CBABorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 15 Perforated Zones(s) (ft) 10 - 15Desc. of MP Top of PVC/North side Stick-up (ft) 1.57 SWL below MP (ft) 2.69 SWL below GS (ft) 1.12Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: Pumping Well Drawdown Pumping Well Recovery Bailer Recovery Hvorslev TestX Observation Well Drawdown Observation Well Recovery Slug Injection or Removal Other (Specify) Distance of Observation Well from Pumping Well (ft) 10 Pump hp. & type 3/4 hp Sub Pump Depth (ft) Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) Temp (°C) Time Avg. Discharge (gpm) 8.0 Test Duration (min) 1440 Max WL Change (ft) 1.5 Transmissivity (gpd/ft) Storativity Hydraulic Conductivity (gpd/ft²) Specific Capacity (gpm/ft of drawdown) REMARKS

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
20:13:00	3.4	22:12:00	4.19				
20:20:00		22:28:00	4.30				Pump on at 20:20:00 9/7/89
20:20:00	3.40	22:58:20	4.37				
20:22:30	3.43	23:30:00	4.45				
20:24:00	3.43	24:00:00	4.54				
20:26:00	3.46	01:05:00	4.62				
20:27:40	3.46	02:06:00	4.70				
20:29:44	3.47	02:57:00	4.75				
20:32:40	3.52	04:12:00	4.77				
20:34:30	3.53	05:46:00	4.79				
20:36:30	3.59	06:46:00	4.82				
20:38:20	3.60	07:46:00	4.82				
20:40:35	3.63	08:48:00	4.82				
20:42:15	3.66	09:47:00	4.87				
20:44:10	3.67	10:48:00	4.87				
20:46:05	3.71	11:48:00	4.87				
20:47:58	3.71	12:48:00	4.86				
20:53:20	3.75	13:56:00	4.87				
20:57:10	3.77	14:56:00	4.87				
21:02:00	3.79	15:57:00	4.89				
21:07:00	3.83	16:59:00	4.90				
21:12:00	3.85	18:00:00	4.89				
21:27:00	3.97	18:53:00	4.90				
21:32:00	4.07	20:02:00	4.88				
21:57:00	4.15	20:20:00					Pump off at 20:20:00 9/8/89

AQUIFER TEST DATA

WELL OBSERVED: AI-2-08-2EWELL TESTED: AI-PW-02PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract CBABorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 15 Perforated Zones(s) (ft) 10 - 15Desc. of MP Top of PVC/North side Stick-up (ft) 1.2 SWL below MP (ft) 2.85 SWL below GS (ft) 1.65Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 52.7 Pump hp. & type 3/4 hp Sub Pump Depth (ft) _____Water Quality Sample Taken? ☐ NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 8.0 Test Duration (min) 1440 Max WL Change (ft) 1.42 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
20:14:00	3.25	21:58:20	4.29				
20:20:00		22:14:00	4.32				Pump on at 20:20:00 9/7/89
20:21:50	3.25	22:30:00	4.37				
20:23:10	3.25	23:00:00	4.37				
20:25:00	3.25	23:33:00	4.42				
20:26:45	3.25	00:00:00	4.46				
20:28:30	3.33	01:06:00	4.46				
20:31:10	3.38	02:10:00	4.55				
20:33:30	3.49	02:59:00	4.57				
20:35:30	3.55	04:15:00	4.58				
20:37:30	3.60	05:48:00	4.60				
20:39:44	3.63	06:48:00	4.60				
20:41:20	3.65	07:48:00	4.60				
20:43:20	3.67	08:49:00	4.61				
20:45:10	3.70	09:48:00	4.64				
20:46:55	3.74	10:48:00	4.62				
20:48:53	3.77	11:49:00	4.63				
20:54:10	3.83	12:49:00	4.65				
20:58:00	3.88	13:56:00	4.65				
21:02:53	3.93	15:00:00	4.65				
21:08:30	4.00	15:52:00	4.67				
21:13:00	4.03	17:03:00	4.67				
21:28:00	4.16	18:03:00	4.65				
21:44:00	4.17	18:55:00	4.65				
		20:03:00	4.62				
		10:20:00					Pump off at 20:20:00 9/8/89

AQUIFER TEST DATA

WELL OBSERVED: AI-2-08-2NWELL TESTED: AI-PW-02PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/7-9/8/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 7W Sec. 19 Tract CBABorehole Diam. (in) Well Diam. (in) 2 Well Depth (ft) 15 Perforated Zones(s) (ft) 10 - 15Desc. of MP Top of PVC/North side Stick-up (ft) 1.3 SWL below MP (ft) 2.82 SWL below GS (ft) 2.52Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: Pumping Well Drawdown Pumping Well Recovery Bailer Recovery Hvorslev TestX Observation Well Observation Well Slug Injection Other (Specify)
Drawdown Recovery or RemovalDistance of Observation Well from Pumping Well (ft) 48.5 Pump hp. & type 3/4 hp Sub Pump Depth (ft) Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) Temp (°C) Time Avg. Discharge (gpm) 8.0 Test Duration (min) 1440 Max WL Change (ft) 1.04 Transmissivity (gpd/ft) Storativity Hydraulic Conductivity (gpd/ft²) Specific Capacity (gpm/ft of drawdown) REMARKS

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
20:19:00	2.82	22:05:00	3.53				
20:20:00		22:22:30	3.54				Pump on at 20:20:00 9/7/89
20:21:00	3.00	22:57:00	3.56				
20:23:00	3.10	23:33:00	3.60				
20:27:00	3.14	23:55:00	3.62				
20:20:00	3.17	01:09:00	3.62				
20:31:00	3.18	02:17:00	3.69				
20:33:00	3.20	02:54:00	3.71				
20:35:00	3.24	04:09:00	3.73				
20:37:00	3.26	05:52:00	3.75				
20:40:00	3.26	06:52:00	3.77				
20:42:00	3.28	07:51:00	3.79				
20:44:00	3.31	08:53:00	3.81				
20:47:00	3.31	09:52:00	3.81				
20:51:30	3.36	10:52:00	3.86				
20:55:00	3.37	11:52:00	3.84				
21:00:00	3.37	12:53:00	3.83				
21:05:00	3.40	13:52:00	3.86				
21:10:20	3.42	15:04:00	3.84				
21:15:00	3.43	15:52:00	3.85				
21:20:00	3.46	17:00:00	3.85				
21:35:00	3.49	18:01:00	3.86				
21:50:00	3.53	18:56:00	3.85				
		20:03:00	3.85				
		20:20:00					Pump off at 20:20:00 9/8/89

AQUIFER TEST DATA

WELL OBSERVED: AI-PW-03WELL TESTED: AI-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 24 Tract CBBBorehole Diam. (in) 6 7/8 Well Diam. (in) 5 7/8 Well Depth (ft) 42.0 Perforated Zones(s) (ft) 9 - 39
(GS-16 11.2 - 16.2)Desc. of MP Top of Steel/North side Stick-up (ft) 1.25 SWL below MP (ft) 8.43 SWL below GS (ft) 7.18Aquifer Name SBC Alluvium Aquifer Description Coarse Sand; Thickness = 35'
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☒ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☐ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 9.5 Pump hp. & type 3 hp Sub Pump Depth (ft) 35'Water Quality Sample Taken? ☒ YES Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 47.8 Test Duration (min) 1440 Max WL Change (ft) 20.68 Transmissivity (gpd/ft) _____
(GS-16 1.38)Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____REMARKS Drum dimensions d = 1.85', h = 2.8', Volume = 56 Gallons

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	PW-03	GS-16				
	HEAD	HEAD				Head measured with Datapod & Transducers
15:45:00	26.63	8.88				Pump on at 15:45:00 9/5/89
15:55:00			49.25			
15:57:00	12.73	7.95				
16:08:00			49.25			
16:12:00	11.67	7.88				
16:17:00	11.45	7.85				
16:28:00	10.88	7.84				
16:36:00	10.58	7.84	48.5			
16:55:00			48.5			
16:58:00	9.96	7.78				
17:13:00	9.14	7.76				
17:20:00	8.63	7.79				
17:34:00	8.48	7.77				
17:43:00	8.27	7.73				
17:56:00	8.21	7.72	48.5			
18:38:00	8.00	7.71				
19:11:00	7.99	7.75	47.8			
19:38:00	7.92	7.70				
19:50:00	7.90	7.70	48.5			
20:44:00	7.81	7.69	47.8			
21:43:00	7.90	7.67	47.8			
22:43:00	7.74	7.67	47.1			
23:43:00	7.69	7.64	46.5			
00:42:00	7.54	7.64	45.8			Opened valve slightly
00:43:30			48.3			
01:40:00	7.42	7.63	47.1			
02:40:00	7.38	7.62	46.5			

AQUIFER TEST DATA (continued)

WELL OBSERVED: AI-PW-03WELL TESTED: AI-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	PW-03	GS-16				
	HEAD	HEAD				
02:50:00			47.8			
02:55:00	7.14	7.62				
03:24:00	7.13	7.61	47.8			
03:40:00	7.05	7.61				
04:24:00	7.07	7.60				
05:26:00	7.10	7.60				
06:29:00	7.20	7.58	47.8			
06:37:00	7.10	7.58				
07:30:00	6.98	7.56				
08:21:00	7.05	7.56	48.5			
08:34:00	6.57	7.52	47.8			
09:30:00			47.8			
10:27:00	6.51	7.58	47.8			
11:35:00	6.48	7.54	47.1			
12:35:00	6.26	7.58	47.8			
13:30:00	5.96	7.50	47.8			
14:24:00	5.89	7.55	47.1			
15:23:00	5.99	7.52				
15:44:00	5.95					
15:45:00						Pump off at 15:45:00 9/6/89

AQUIFER TEST DATA

WELL OBSERVED: AI-3-08-1EWELL TESTED: AI-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 24 Tract C8BBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 15 Perforated Zones(s) (ft) 9.2 - 14.2Desc. of MP Top of PVC/North side Stick-up (ft) 1.0 SWL below MP (ft) 7.83 SWL below GS (ft) 6.83Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 9.7 Pump hp. & type 3 hp Sub Pump Depth (ft) 35'Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 47.8 Test Duration (min) 1440 Max WL Change (ft) .90 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____REMARKS Drum dimensions d = 1.85', h = 2.8', Volume = 56 Gallons

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
15:45:00	8.04	18:05:00	8.55				Pump on at 15:45:00 9/5/89
15:45:30	8.00	18:32:00	8.53				
15:46:00	8.15	19:00:00	8.58				
15:46:30	8.15	19:32:00	8.58				
15:47:00	8.16	20:29:00	8.64				
15:47:30	8.18	21:29:00	8.67				
15:48:00	8.19	22:27:00	8.68				
15:48:30	8.20	23:27:00	8.71				
15:49:00	8.22	00:22:00	8.73				
15:49:45	8.21	01:23:00	8.74				
15:51:30	8.22	02:34:00	8.74				
15:52:00	8.20	03:29:00	8.76				
15:54:30	8.20	04:27:00	8.76				
15:56:00	8.30	05:30:00	8.80				
15:58:00	8.32	06:32:00	8.80				
16:00:00	8.37	07:34:00	8.83				
16:05:00	8.40	08:22:00	8.85				
16:10:30	8.40	09:24:00	8.88				
16:15:00	8.40	10:29:00	8.88				
16:20:30	8.40	11:28:00	8.89				
16:25:30	8.40	12:28:00	8.90				
16:30:30	8.41	13:23:00	8.91				
16:40:30	8.43	14:24:00	8.91				
16:50:30	8.44	15:24:00	8.95				
17:02:00	8.43	15:44:00	8.95				
17:16:00	8.43	15:45:00	8.94				Pump off at 15:45:00 9/6/89

AQUIFER TEST DATA

WELL OBSERVED: AI-3-08-1SWELL TESTED: AI-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 24 Tract CBBBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 14.5 Perforated Zones(s) (ft) 9.5 - 14.5Desc. of MP Top of PVC/North side Stick-up (ft) 1.0 SWL below MP (ft) 7.35 SWL below GS (ft) 6.35Aquifer Name SBC Alluvium Aquifer Description Alluvium
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 9.2 Pump hp. & type 3 hp Sub Pump Depth (ft) 35'Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 47.8 Test Duration (min) 1440 Max WL Change (ft) .96 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____REMARKS Drum dimensions d = 1.85', h = 2.8', Volume = 56 Gallons

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
15:45:00		17:29:00	8.18				Pump on at 15:45:00 9/5/89
15:45:00	7.60	18:09:00	8.26				
15:45:30	7.60	18:30:00	8.31				
15:46:00	7.62	19:03:00	8.31				
15:47:00	7.65	19:36:00	8.32				
15:47:30	7.65	20:34:00	8.35				
15:48:00	7.66	21:35:00	8.36				
15:48:30	7.68	22:33:00	8.37				
15:49:00	7.69	23:33:00	8.41				
15:49:30	7.70	00:27:00	8.42				
15:50:00	7.71	01:29:00	8.43				
15:52:00	7.74	02:31:00	8.44				
15:54:00	7.73	03:26:00	8.46				
15:56:00	7.82	04:25:00	8.48				
15:58:00	7.86	05:27:00	8.48				
16:00:00	7.90	06:30:00	8.50				
16:05:00	7.97	07:31:00	8.51				
16:10:00	8.00	08:22:00	8.54				
16:15:00	8.03	09:30:00	8.55				
16:20:00	8.06	10:24:00	8.55				
16:25:30	8.09	11:23:00	8.58				
16:30:00	8.11	12:22:00	8.58				
16:40:00	8.13	13:22:00	8.57				
16:50:00	8.15	14:28:00	8.57				
17:00:00	8.17	15:26:00	8.59				
17:15:00	8.19	15:45:00	8.94				Pump off at 15:45:00 9/6/89

AQUIFER TEST DATA

WELL OBSERVED: A1-3-08-2EWELL TESTED: A1-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 24 Tract CBBBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 15.7 Perforated Zones(s) (ft) 10.7 - 15.7Desc. of MP Top of PVC/North side Stick-up (ft) 1.0 SWL below MP (ft) 7.83 SWL below GS (ft) 6.83Aquifer Name SBC Alluvium Aquifer Description (Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: Pumping Well Drawdown Pumping Well Recovery Bailer Recovery Hvorslev TestX Observation Well Observation Well Slug Injection Other (Specify)
Drawdown Recovery or RemovalDistance of Observation Well from Pumping Well (ft) 51.2 Pump hp. & type 3 hp Meyers Pump Depth (ft) 35'Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) Temp (°C) Time Avg. Discharge (gpm) 47.8 Test Duration (min) 1440 Max WL Change (ft) .74 Transmissivity (gpd/ft) Storativity Hydraulic Conductivity (gpd/ft²) Specific Capacity (gpm/ft of drawdown) REMARKS

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
15:45:00	8.86	00:25:00	9.41				Pump on at 15:45:00 9/5/89
15:57:30	8.84	01:26:00	9.43				
15:59:30	9.02	02:34:00	9.41				
16:06:00	9.06	03:29:00	9.42				
16:11:00	9.06	04:27:00	9.44				
16:16:00	9.06	05:30:00	9.45				
16:26:00	9.10	06:32:00	9.49				
16:31:00	9.10	07:34:00	9.48				
16:41:00	9.13	08:24:00	9.53				
16:51:00	9.15	09:27:00	9.53				
17:03:00	9.13	10:31:00	9.54				
17:17:00	9.45	11:31:00	9.56				
17:32:00	9.19	12:30:00	9.57				
18:07:00	9.24	13:25:00	9.57				
18:33:00	9.25	14:26:00	9.58				
19:01:00	9.29	15:25:00	9.60				
19:35:00	9.29	15:44:00	9.60				
20:32:00	9.33	15:45:00					Pump off at 15:45:00 9/6/89
21:31:00	9.36						
22:29:00	9.39						
23:31:00	9.41						

AQUIFER TEST DATA

WELL OBSERVED: AI-3-OB-1SWELL TESTED: AI-PW-03PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 9/5-9/6/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 24 Tract CBBBorehole Diam. (in) 6 Well Diam. (in) 2 Well Depth (ft) 15 Perforated Zones(s) (ft) 9.5 - 14.5Desc. of MP Top of PVC/North side Stick-up (ft) 1.0 SWL below MP (ft) 6.47 SWL below GS (ft) 5.47Aquifer Name SBC Alluvium Aquifer Description (Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 49.3 Pump hp. & type 3 hp Sub Pump Depth (ft) 35'Water Quality Sample Taken? Yes ☐ No ☐ Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) _____ Test Duration (min) 1440 Max WL Change (ft) .78 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
15:41:00	6.69	00:30:00	7.30				
15:45:00		01:31:00	7.32				Pump on at 15:45:00 9/5/89
15:51:00	6.66	02:32:00	7.34				
15:59:00	6.71	03:27:00	7.33				
16:06:00	6.77	04:26:00	7.36				
16:11:00	6.82	05:28:00	7.38				
16:16:00	6.84	06:31:00	7.40				
16:21:00	6.86	07:32:00	7.50				
16:26:00	6.89	08:22:00	7.40				
16:31:00	6.91	09:34:00	7.42				
16:41:00	6.95	10:27:00	7.43				
16:51:00	6.99	11:26:00	7.44				
17:01:00	7.00	12:25:00	7.44				
17:16:00	7.03	13:23:00	7.44				
17:30:00	7.05	14:28:00	7.47				
18:05:00	7.08	15:27:00	7.49				
18:31:00	7.12	15:44:00	7.47				
19:04:00	7.17	15:45:00					Pump off at 15:45:00 9/6/89
19:36:00	7.18						
20:35:00	7.25						
21:35:00	7.25						
22:35:00	7.27						
23:35:00	7.28						

AQUIFER TEST DATA

WELL OBSERVED: AI-PW-04WELL TESTED: AI-PW-04PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 8/30-8/31/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 23 Tract DBBBorehole Diam. (in) 6 7/8 Well Diam. (in) 5/58 Well Depth (ft) 22.5 Perforated Zones(s) (ft) 9.5 - 19.5
4-OB-1E 6 2 13.8 8.8 - 13.8Desc. of MP Top of steel/North side Stick-up (ft) 3.0 SWL below MP (ft) 7.25 SWL below GS (ft) 4.25Aquifer Name SBC Alluvium Aquifer Description Coarse sand with silt
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☒ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☐ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 10.7 Pump hp. & type 3/4 Pump Depth (ft) 17'Water Quality Sample Taken? YES Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) 12.8 Test Duration (min) 1016 Max WL Change (ft) _____ Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____REMARKS Pumping well and 04-OB1-E measured with Omnidata Datapod II Recorder

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	DSM #1 HEAD	DSM #2 HEAD				
18:40:00	11.58	8.06				
18:45:00	11.58	8.09				Pump on at 18:45:00 - PW-04 - 9/5/89
18:50:00			12.9			
18:55:00	4.91	7.84				Drawdown - PW-04 - 6.67
19:00:00			13.75			
19:05:00	4.70	7.65				Drawdown - PW-04 - 6.88
19:10:00				4.7		
19:12:00			13.0			
19:16:00	4.95	7.53				
19:23:00	4.92	7.46				Drawdown - PW-04 - 6.66
19:30:00			12.85			
19:32:00	4.91	7.41				
19:48:00	4.73	7.35	12.85			
20:04:00	4.61	7.30				Drawdown - PW-04 - 6.97
20:22:00	4.58	7.28	12.50			Drawdown - PW-04 - 7.00
20:37:00	4.51	7.27	12.80			Drawdown - PW-04 - 7.07
20:45:00	4.49	7.27		4.9		Drawdown - PW-04 - 7.09
21:00:00			12.85			
21:16:00	4.34	7.25				
21:45:00			12.55			
21:48:00	4.25					Drawdown - PW-04 - 7.33) Pumping rate
22:18:00	3.96	7.22	12.89			Drawdown - PW-04 - 7.62) Fluctuating
22:37:00	3.91	7.23				Drawdown - PW-04 - 7.67
23:00:00			12.50			
23:08:00	4.00	7.26				Drawdown - PW-04 - 7.58
23:18:00			12.50			
23:27:00	3.97		12.55	4.6		Drawdown - PW-04 - 7.61

AQUIFER TEST DATA (continued)

WELL OBSERVED: AI-PW-04WELL TESTED: AI-PW-04PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 8/30-8/31/89

Date & Hour	Water Level (ft)	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	DSM #1 HEAD	DSM #2 HEAD				
00:02:00	3.87	7.29				Drawdown - PW-04 - 7.71
01:00:00						Discharge varying wildly.
01:07:00	3.54					
01:13:00			12.85			
01:15:00	3.68	7.33				Drawdown - PW-04 - 7.90
01:45:00				4.6		
02:30:00	3.31	7.30	12.55			Drawdown - PW-04 - 8.27
02:46:00	3.66	7.29				
03:17:00	3.69	7.32				
03:31:00	3.66	7.30	12.67			
04:02:00	3.66	7.30				
04:31:00	3.68	7.32	12.50			
05:25:00	4.09	7.32	12.60			Drawdown - PW-04 - 7.49
06:16:00	4.09	7.35	12.75			Drawdown - PW-04 - 7.49
06:31:00	3.12	7.31	12.75	4.5		Drawdown - PW-04 - 8.46
06:47:00	3.03	7.30				Drawdown - PW-04 - 8.55
06:58:00	2.92	7.29	12.89			
07:13:00	2.92	7.28				
07:29:00	2.92	7.25	12.87			Drawdown - PW-04 - 8.66
07:48:00	2.89	7.21				
08:02:00	2.83	7.02	12.87			Drawdown - PW-04 - 8.75
08:31:00	2.83	7.20				
08:38:00	2.80	7.22	13.0			
08:58:00	2.76	7.21				
09:05:00			12.99			
09:09:00	2.80	7.21				Drawdown - PW-04 - 8.78
09:42:00	2.78	7.23				
10:06:00	2.82	7.21	12.89			
10:21:00	2.70	7.17				
10:50:00	2.90	7.21				
10:55:00			12.89	4.5		
11:02:00	2.95	7.25				
11:15:00						Pump off at 11:15:00 8/31/89

AQUIFER TEST DATA

WELL OBSERVED: A1-4-08-2NWELL TESTED: A1-PW-04PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 8/30-8/31/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 23 Tract DBBBorehole Diam. (in) 6 Well Diam. (in) 6 Well Depth (ft) 15 Perforated Zones(s) (ft) 10 - 15Desc. of MP Top of casing/North side Stick-up (ft) _____ SWL below MP (ft) 4.85 SWL below GS (ft) _____Aquifer Name SBC Alluvium Aquifer Description Silty sand
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 46.6 Pump hp. & type 3/4 hp Sub Pump Depth (ft) 17Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) _____ Test Duration (min) 1016 Max WL Change (ft) .26 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____REMARKS Heavy rain 8/30/89 at 10:30

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
18:25:00	4.85	00:03:00	5.05				
18:45:00		01:18:00	5.06				Pump on at 18:45:00 8/30/89
18:47:00	5.00	02:30:00	5.08				
18:49:00	5.04	03:35:00	5.08				
18:53:00	5.02	04:34:00	5.07				
18:57:00	5.01	05:34:00	5.07				
19:02:00	5.01	06:36:00	5.09				
19:07:00	5.01	07:26:00	5.11				
19:14:00	5.01	08:13:00	5.11				
19:25:00	5.01	08:42:00	5.11				
19:40:00	5.01	10:10:00	5.11				
19:51:00	5.03	11:06:00	5.10				
20:04:00	5.05	11:15:00					Pump off at 11:15:00 8/31/89
20:20:00	5.05						
20:43:00	5.05						
21:15:00	5.06						
22:04:00	5.09						
23:04:00	5.05						

AQUIFER TEST DATA

WELL OBSERVED: OB-1-SWWELL TESTED: A1-PW-04PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 8/30-8/31/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 23 Tract DBBBorehole Diam. (in) 6 Well Diam. (in) 6 Well Depth (ft) 22.5 Perforated Zones(s) (ft) _____Desc. of MP Top of casing/North side Stick-up (ft) 2 SWL below MP (ft) 6.52 SWL below GS (ft) 4.52Aquifer Name SBC Alluvium Aquifer Description _____
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____Distance of Observation Well from Pumping Well (ft) 17.5 Pump hp. & type 3/4 hp Sub Pump Depth (ft) 17Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____Avg. Discharge (gpm) _____ Test Duration (min) 1016 Max WL Change (ft) .91 Transmissivity (gpd/ft) _____Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
18:45:00	6.50						Pump on at 18:45:00 8/30/89
18:46:00	7.20	05:32:00	7.33				
18:49:00	7.20	06:32:00	7.34				
18:51:00	7.20	07:25:00	7.41				
18:53:00	7.30	08:11:00	7.42				
18:55:00	7.30	08:39:00	7.43				
18:57:00	7.35	10:07:00	7.44				
18:59:00	7.35	11:08:00	7.41				
19:05:00	7.40	11:15:00					Pump off at 11:15:00 8/31/89
19:10:00	7.40						
19:15:00	7.40						
19:25:00	7.40						
19:35:00	7.32						
19:45:00	7.36						
20:01:00	7.38						
20:17:00	7.38						
20:39:00	7.38						
21:11:00	7.40						
22:02:00	7.48						
23:01:00	7.33						
00:01:00	7.35						
01:15:00	7.35						
02:30:00	7.39						
03:32:00	7.39						
04:32:00	7.39						

AQUIFER TEST DATA

WELL OBSERVED: OB-1-N

WELL TESTED: AI-PW-04

PROJECT: SBC AREA I PHASE II RI PERSONNEL: Grady, Armstrong TEST DATE: 8/30-8/31/89

WELL DESCRIPTION

State Montana County Silver Bow Location: T 3N R 8W Sec. 23 Tract DBB

Borehole Diam. (in) 6 Well Diam. (in) 6 Well Depth (ft) _____ Perforated Zones(s) (ft) _____

Desc. of MP Top of casing/North side Stick-up (ft) _____ SWL below MP (ft) 6.02 SWL below GS (ft) _____

Aquifer Name SBC Alluvium Aquifer Description Silty sand
(Lithology, Thickness, Depth to Top)

TEST DESCRIPTION

Test Type: ☐ Pumping Well Drawdown ☐ Pumping Well Recovery ☐ Bailer Recovery ☐ Hvorslev Test

☒ Observation Well Drawdown ☐ Observation Well Recovery ☐ Slug Injection or Removal ☐ Other (Specify) _____

Distance of Observation Well from Pumping Well (ft) 20.0 Pump hp. & type 3/4 hp Sub Pump Depth (ft) 17

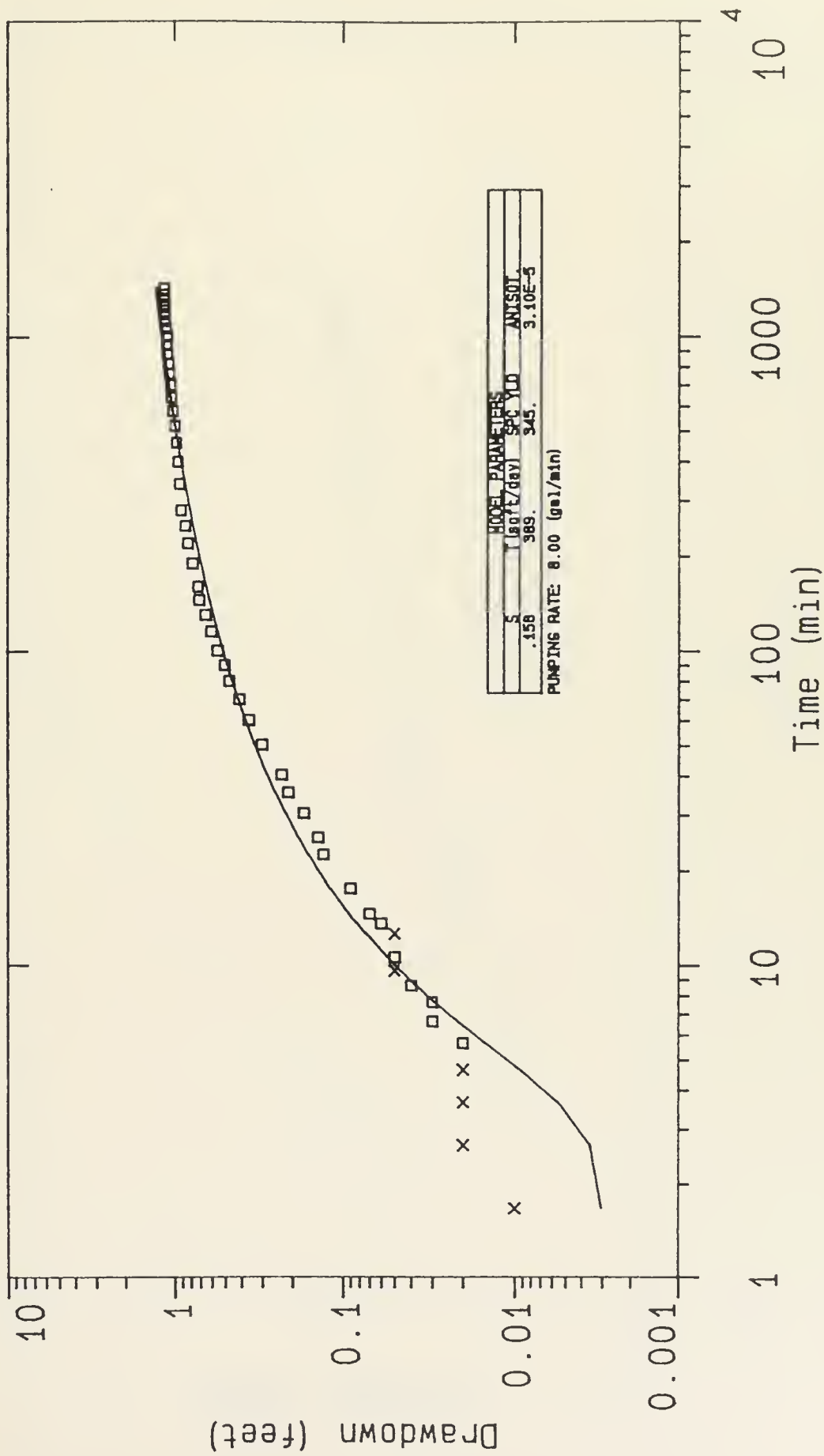
Water Quality Sample Taken? NO Specific Conductance (umhos/cm @ 25°C) _____ Temp (°C) _____ Time _____

Avg. Discharge (gpm) _____ Test Duration (min) 1016 Max WL Change (ft) .15 Transmissivity (gpd/ft) _____

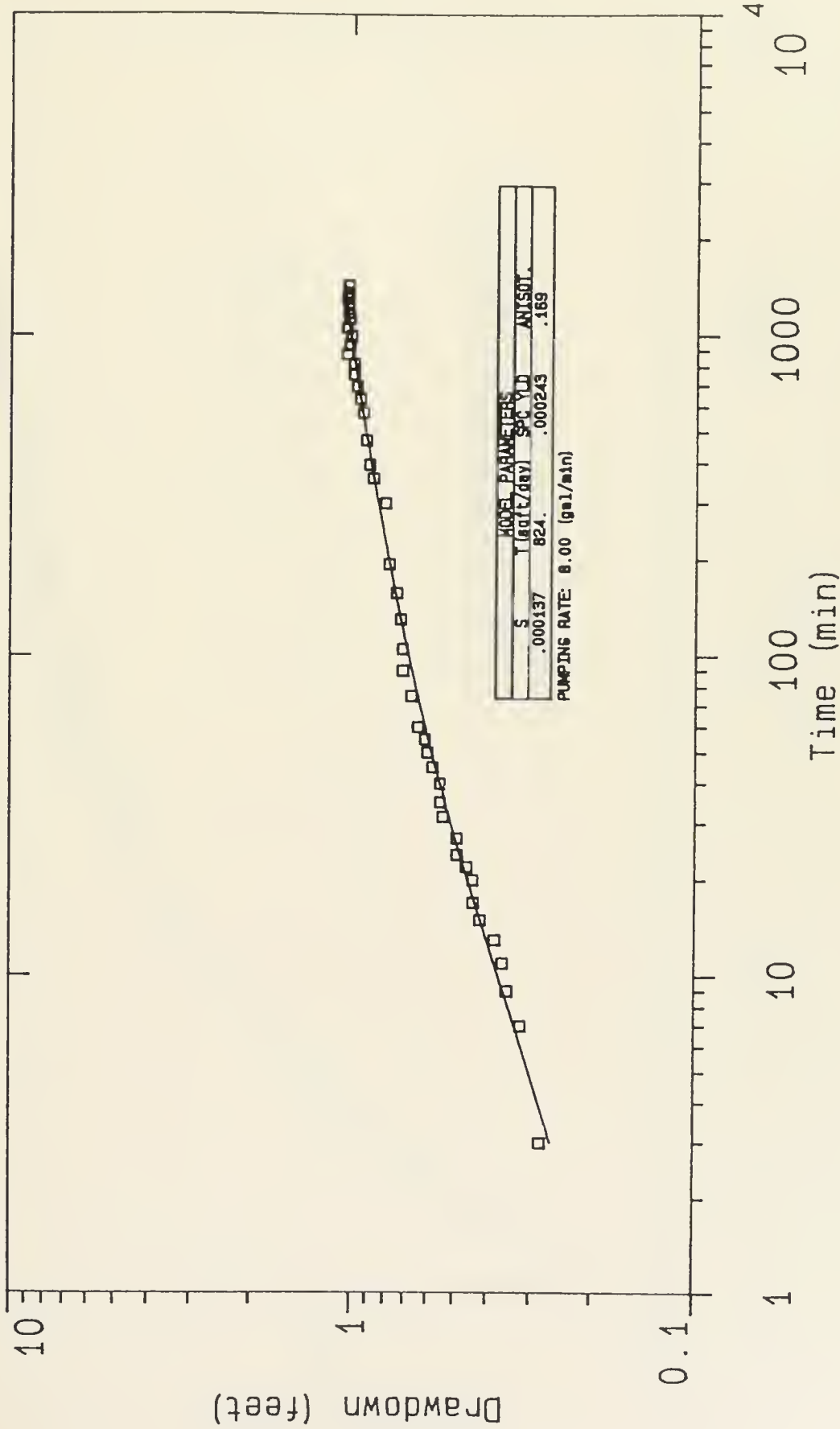
Storativity _____ Hydraulic Conductivity (gpd/ft²) _____ Specific Capacity (gpm/ft of drawdown) _____

REMARKS _____

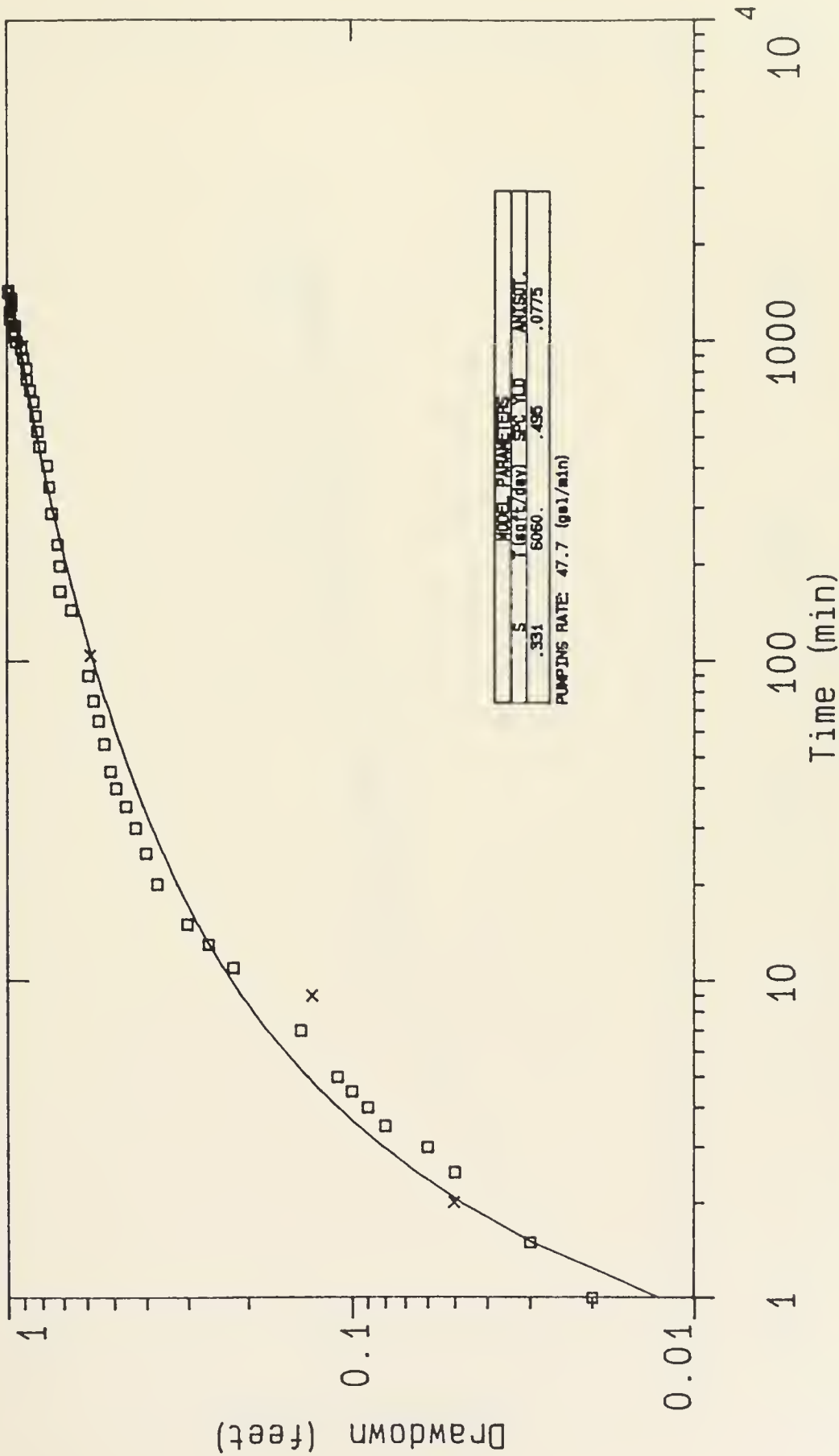
Date & Hour	Water Level (ft)	Date & Hour	Water Level (ft)	Discharge	pH	Specific Conductivity	Comments
	SWL		SWL				
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18:47:00	6.35	05:31:00	6.80				
18:50:00	6.55	06:31:00	6.80				
18:52:00	6.65	07:26:00	6.94				
18:54:00	6.75	08:11:00	6.94				
18:56:00	6.80	08:40:00	6.93				
18:58:00	6.85	10:08:00	6.95				
19:00:00	6.85	11:07:00	6.94				
19:06:00	6.90	11:15:00					Pump off at 11:15:00 8/31/89
19:11:00	6.90						
19:16:00	6.90						
19:26:00	6.85						
19:36:00	6.87						
19:46:00	6.87						
20:00:00	6.87						
20:19:00	6.89						
20:40:00	6.90						
21:12:00	6.90						
22:00:00	6.92						
23:02:00	6.86						
24:00:00	6.87						
01:16:00	6.88						
02:30:00	6.89						
03:33:00	6.85						
04:31:00	6.85						



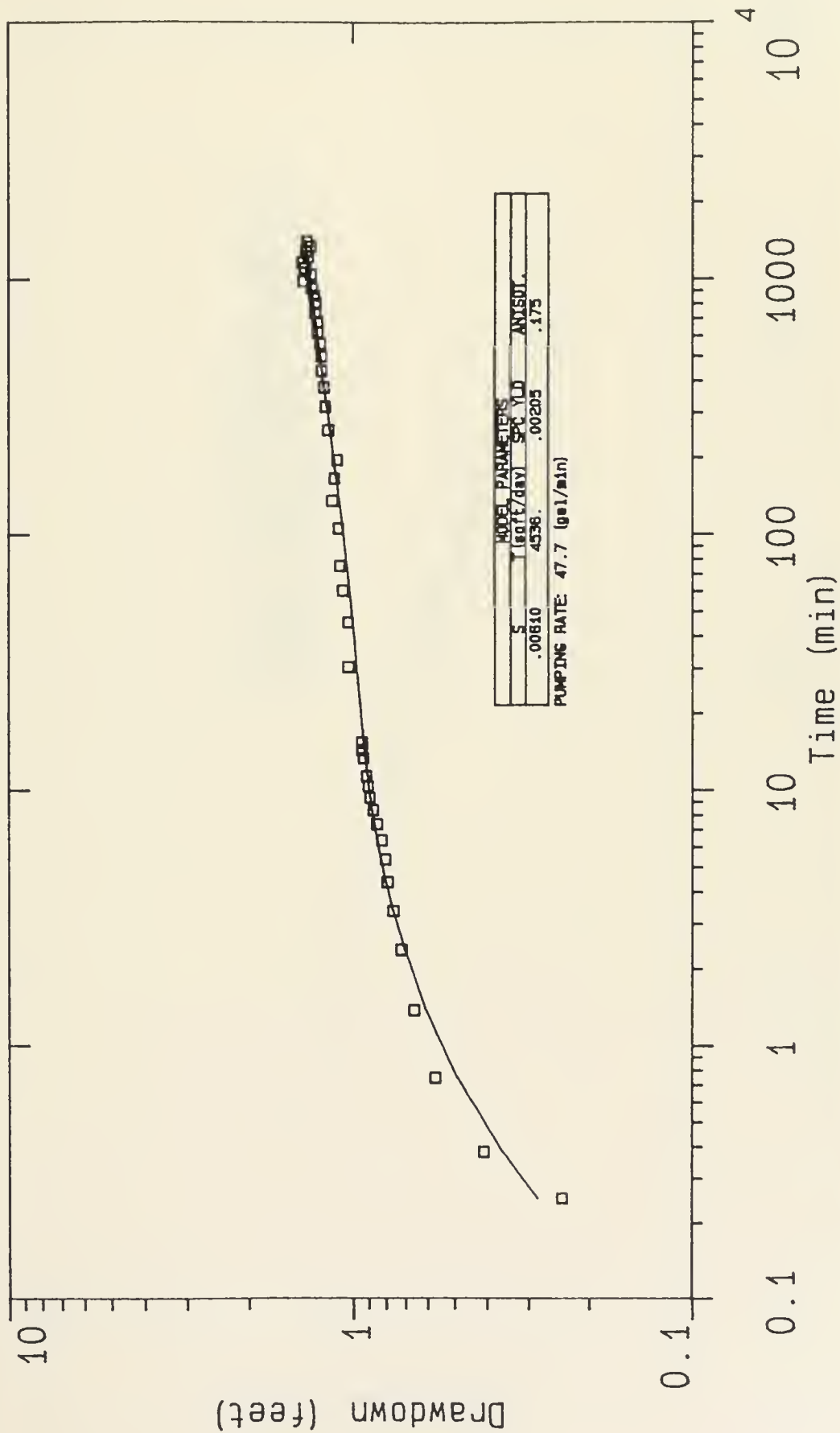
for:	MDHES	PUMP TEST DATA	
by:	Chen-Northern	AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 25.0	Depth: 15.0 feet		
Screen: Base: 25.0	Top: 0.00 feet		
Distance: 9.20	feet Pumping well: PW02	Date: 9-7-89	Well No.: 2081N



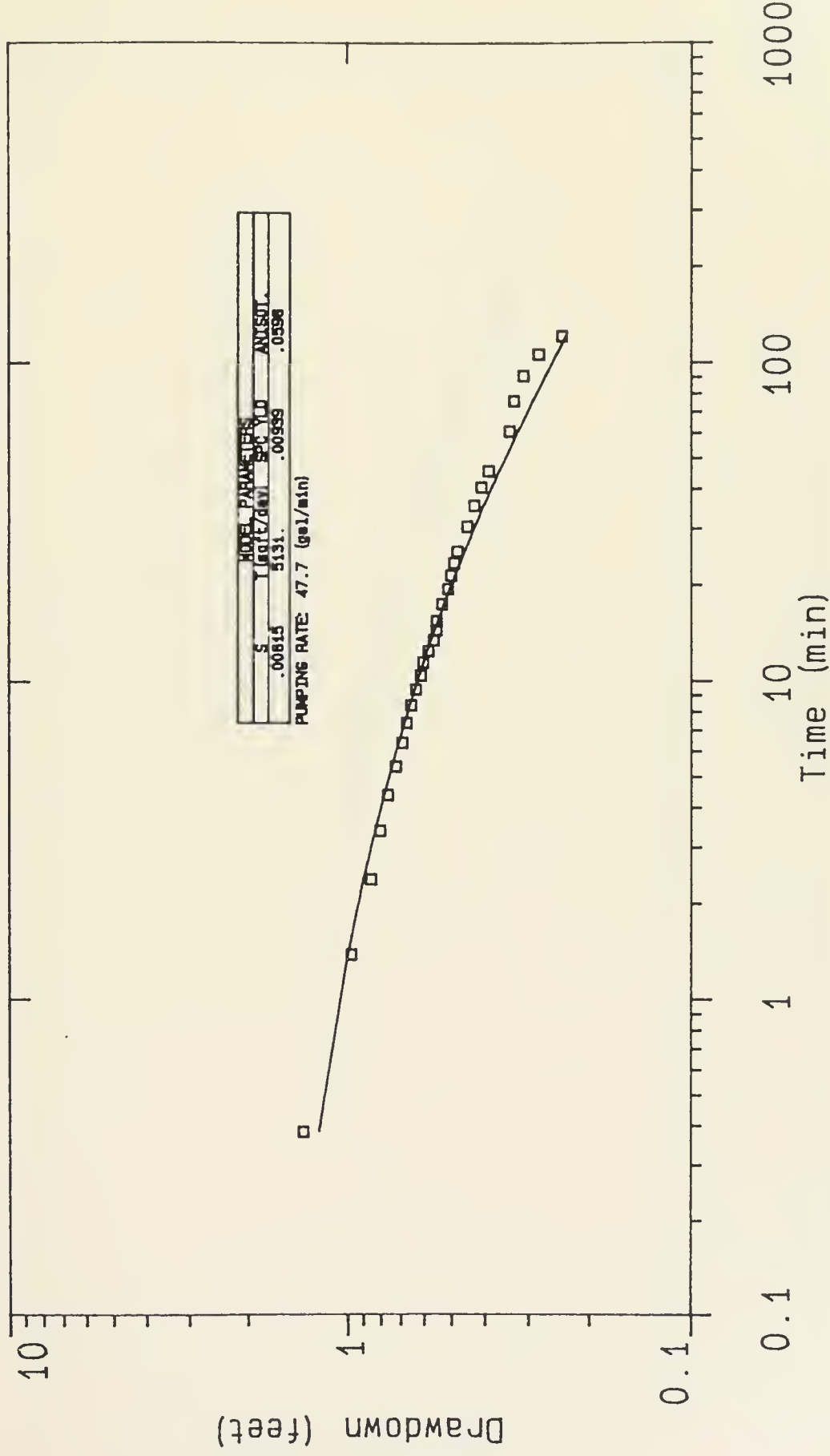
for:	MDHES		PUMP TEST DATA	
by:	Chen-Northern		AREA 1	
Aquifer: ALLUVIUM Thickness: 25.0 Depth: 15.0 feet Screen: Base: 25.0 Top: 0.00 feet Distance: 48.5 feet Pumping well: PW02			SILVER BOW COUNTY	
			Date: 9-7-89	Well No.: 2082N



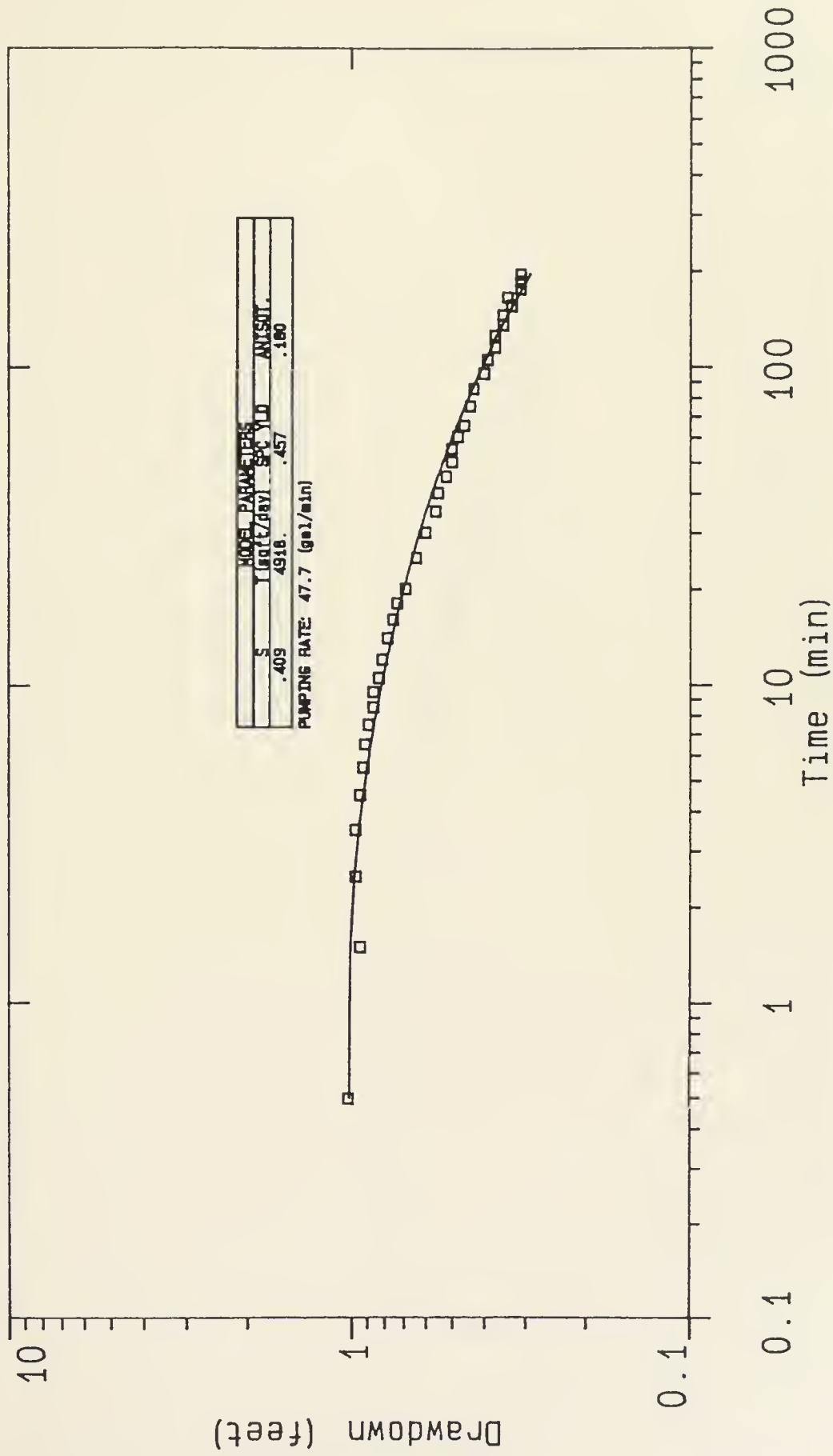
for:	MDHES		PUMP TEST DATA	
by:	Chen-Northern		AREA 1	
Aquifer: ALLUVIUM Thickness: 35.0 Depth: 14.5 feet Screen: Base: 39.0 Top: 9.00 feet Distance: 9.20 feet Pumping well: PW03			SILVER BOW COUNTY	
			Date: 9-5-89	Well No.: 30B1S



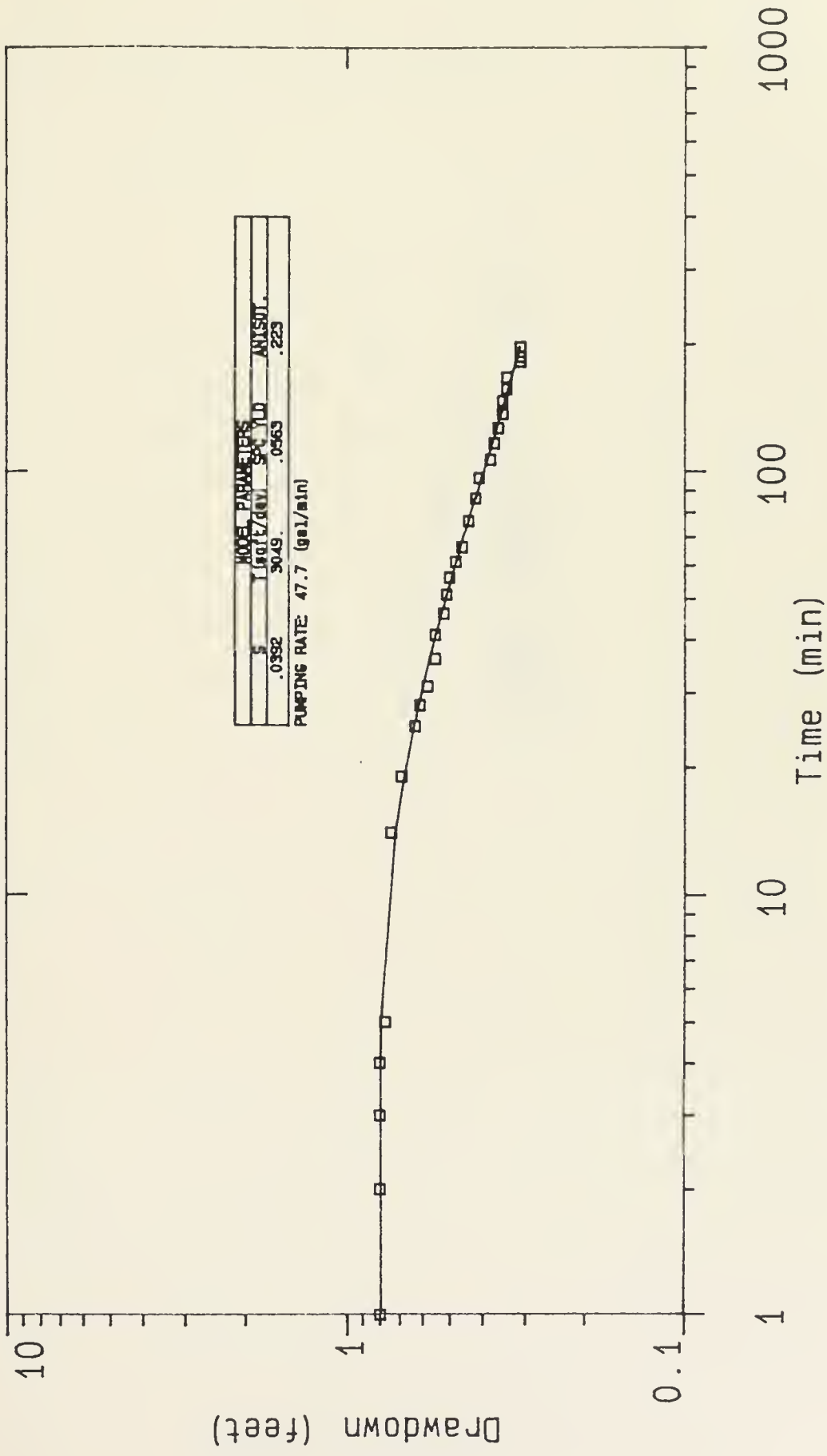
for: MDHES		PUMP TEST DATA	
by: Chen-Northern		AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 35.0 Depth: 16.2 feet			
Screen: Base: 39.0 Top: 9.00 feet			
Distance: 9.50 feet Pumping well: PW03			
		Date: 9-5-89	Well No.: GS-16



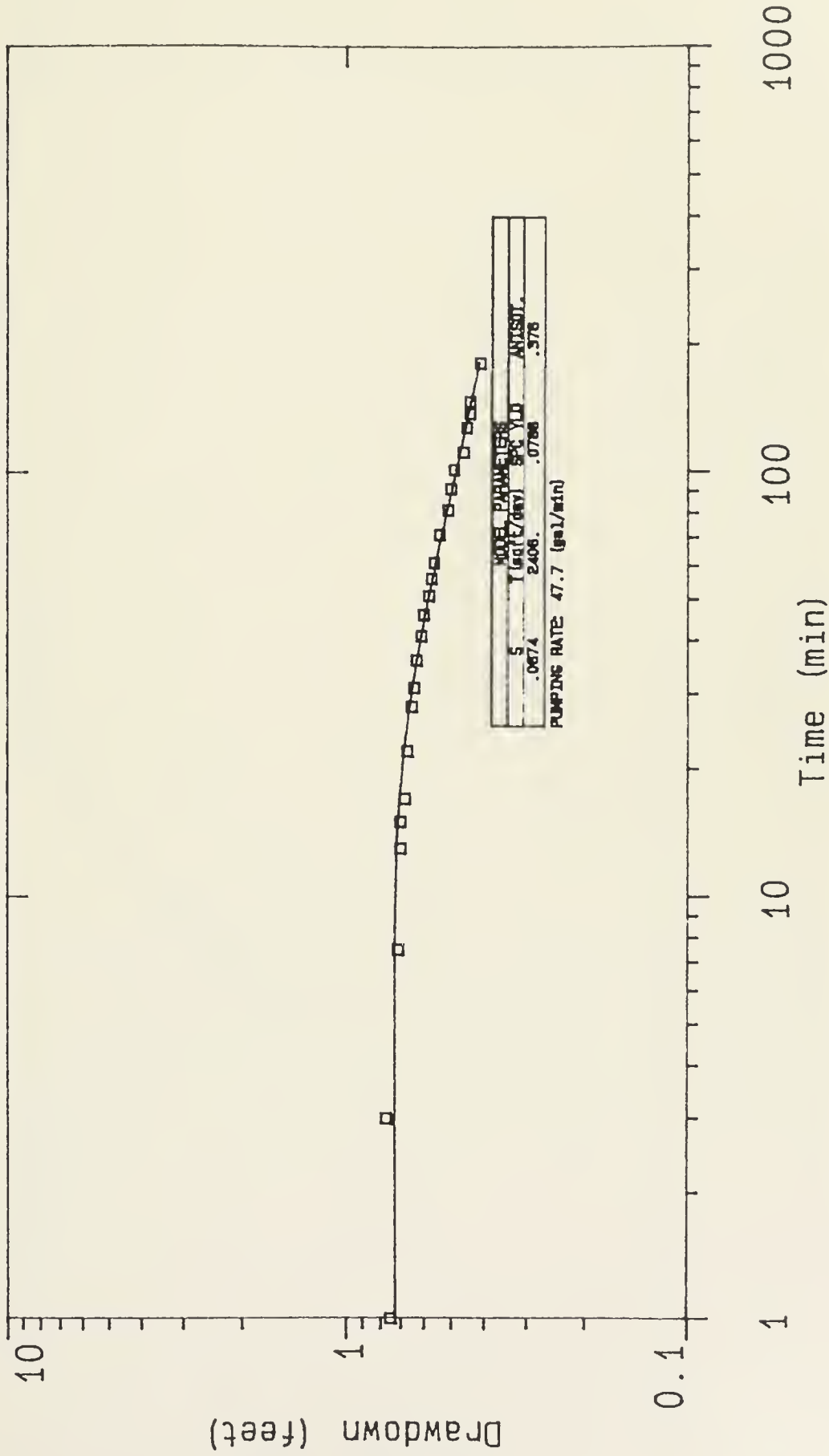
for:	MDHES	RECOVERY TEST DATA	
by:	Chen-Northern	AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 35.0	Depth: 16.2 feet		
Screen: Base: 39.0	Top: 9.00 feet		
Distance: 9.50 feet	Pumping well: PW03	Date: 9-5-89	Well No.: GS-16



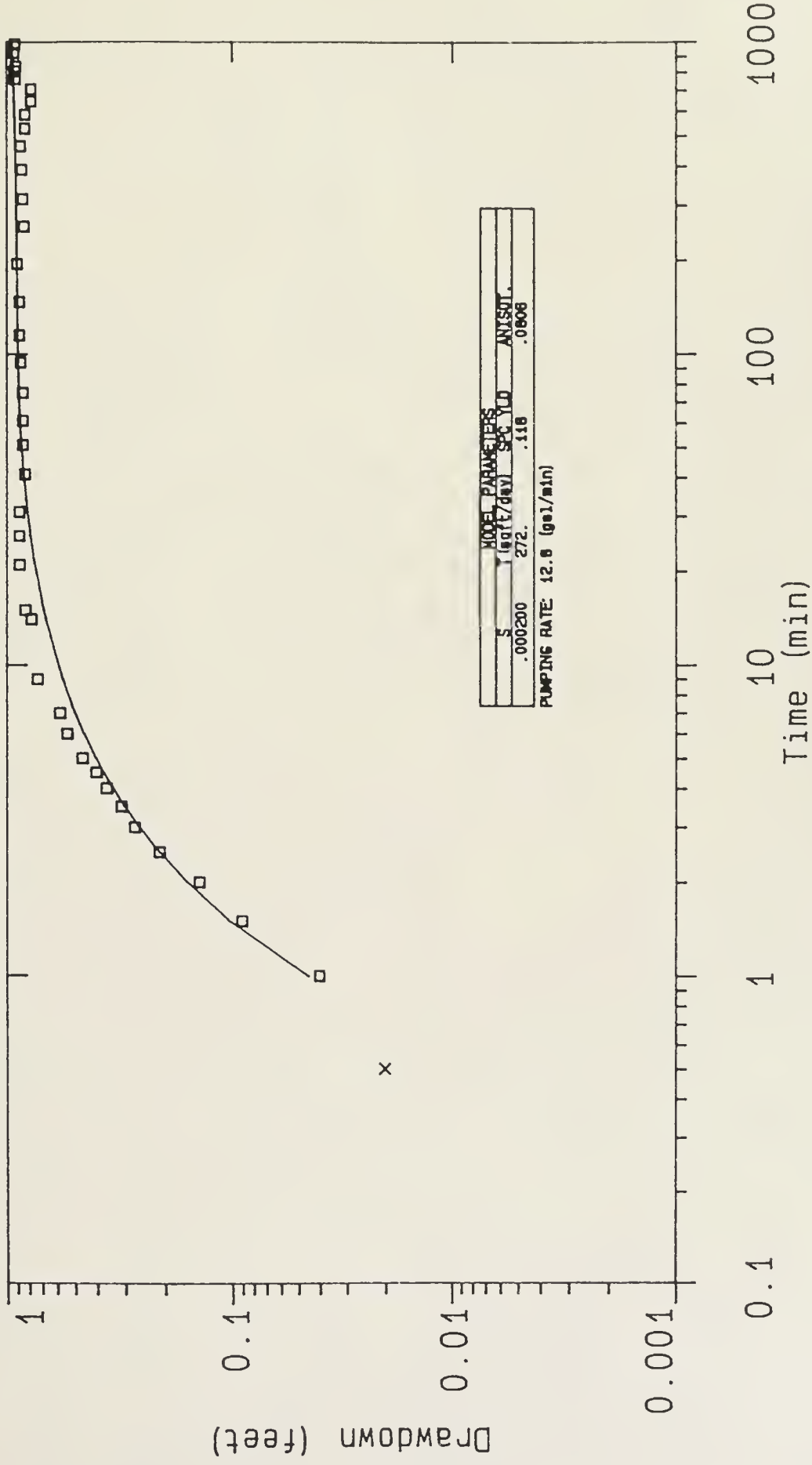
for:	MDHES	RECOVERY TEST DATA	
by:	Chen-Northern	AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 35.0	Depth: 14.5 feet		
Screen: Base: 39.0	Top: 9.00 feet		
Distance: 9.20 feet	Pumping well: PW03	Date: 9-5-89	Well No.: 30B1S



for:	MDHES		RECOVERY TEST DATA	
by:	Chen-Northern		AREA 1	
Aquifer: ALLUVIUM Thickness: 35.0 Depth: 14.8 feet Screen: Base: 39.0 Top: 9.00 feet Distance: 51.2 feet Pumping well: PW03			SILVER BOW COUNTY	
			Date: 9-5-89	Well No.: 3082S



for:	MDHES	RECOVERY TEST DATA	
by:	Chen-Northern	AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 35.0	Depth: 15.7 feet	Date: 9-5-89	
Screen: Base: 39.0	Top: 9.00 feet		
Distance: 51.2 feet	Pumping well: PW03	Well No.: 30B2E	



for:	MDHES	PUMP TEST DATA	
by:	Chen-Northern	AREA 1	
Aquifer: ALLUVIUM		SILVER BOW COUNTY	
Thickness: 22.5	Depth: 20.9 feet		
Screen: Base: 19.5	Top: 9.50 feet		
Distance: 20.0 feet	Pumping well: PW04	Date: 8-30-89	Well No.: CT849

APPENDIX C-1

**Butte Silver Bow Creek; Area I Soil/Mine Waste Survey;
Phase III: Technical Memorandum**

**BUTTE SILVER BOW CREEK
AREA I SOIL/MINE WASTE
SURVEY**

Phase III: Technical Memorandum

submitted to:

CH₂M Hill

submitted by:

Troy Smith and William Schafer
Schafer and Associates
and
John Goering
Montana State University
Reclamation Research Unit

date:

July 7, 1989

TABLE OF CONTENTS

Section	Description	Page
	TABLE OF CONTENTS	i
1.0	INTRODUCTION	2
2.0	SOIL/MINE WASTE MAPPING METHODS .	3
3.0	RESULTS	4
	MAP LEGEND DESCRIPTIONS	6
	FLUVIALLY DEPOSITED MINE WASTE .	7
	RAILROAD FILL MATERIAL	7
	COVER AND FILL MATERIAL	8
	NATURAL SOILS	9

APPENDIX A - Soil Profile Descriptions

APPENDIX B - Codes Used for Soil Profile Descriptions

1.0 INTRODUCTION

The Butte Silver Bow Creek Area I Soil/Mine waste Survey was conducted to provide technical assistance to CH2M Hill during its execution of the MDHES contract on the Silver Bow Creek RI/FS. The survey was designed to aid the XRF/soil sampling team in locating mine waste throughout the project area. The map will also be useful in estimating the location and volume of mine waste in the study area. The soil/mine waste map provides the following information:

1. Spatial extent of mine waste
2. Mine waste type
3. Depth to mine waste
4. Mine waste thickness
5. Type of cover material over the mine waste
5. Estimated slopes and vegetative cover
6. Proximity to urban development
7. Exact acreages of mapping units

The project boundaries extend from Ranchland Packing property (Sec 22, T3N, R8W) to approximately 0.5 mile east of the Civic Center (Sec 17, T3N, R7W). These project boundaries form a corridor along Silver Bow Creek and the Metro Storm Drain.

A copy of the map report and legend are being forwarded to Dick Glanzman, CH₂M Hill-Denver for use in his multi-spectral scanner investigation. Earl Griffith was provided with an advance copy of the map and report to assist in selection of XRF sampling locations. We anticipate that this document will be for internal use by the project team during the Area I field work and that the information can be incorporated into the overall Area I RI data report.

2.0 SOIL/MINE WASTE MAPPING METHODS

The Butte Silver Bow Creek Area I Soil/Mine waste Survey was completed using 1 inch:200 feet and 1 inch:500 feet photo base maps, 9 inch by 9 inch 1:8000 1983 color aerial photos and 9 inch by 9 inch 1:24,000 1955 black and white aerial photos. The project boundaries were delineated on the 1:500 blue line photo copies by CH2M Hill.

A classification system was developed to identify soils and mine waste expected to be found in the project area. Classification was based on mine waste type, depth to mine waste, mine waste thickness and cover material. Natural soils were classified by degree of disturbance and drainage.

Mine mine waste were identified in the field by color, uniform particle size , and lack of structure. The 1955 aerial photos aided in locating mine waste deposits that have subsequently been covered or removed. Many mine waste deposit boundaries were reconstructed from these photos.

Soil mapping was completed by making numerous transects on foot across the study area digging soil profile observation pits with shovels and hand augering equipment. Soil pit depths ranged from 4 to 6 feet. Soil profiles were described and soil pit locations marked on the map. Exposed cuts were utilized to locate mine waste deeper than 6 feet. After completing several transects, mapping unit boundaries were delineated on to a 1 inch: 200feet blue copy line of the base map.

After completion of field mapping, a final map was drafted on mylar. Map unit acreage was calculated with a polar planimeter and summarized in the legend description. Representative soil profile descriptions were encoded using PEDFORM, a computerized soil information system and are listed in Appendix A.

3.0 RESULTS

The soil/mine waste maps (maps 1, 2 and 3, folio) were completed as mylar overlays to CH2M Hill's 1 inch:200 feet base map. The mapping unit legend is shown in Table 1, with detailed map unit descriptions following. The total project area is 515.3 acres with 255.6 acres being affected by mine waste, as summarized in Table 2. Volumes of mine waste and fill materials were estimated by multiplying map unit acreages by depth of material found in corresponding soil pits. Seventy soil identification pits are located and numbered on the maps. Field notes corresponding to each observation will be retained in project files.

Few undisturbed natural soils were found due to Butte's historic industrial development. Most of the older mine waste deposits have been covered with a fill material and in many cases this land has been developed. If the fill material is more than six inches thick it has been described separately for each unit, (see example in legend).

Table 1. Mapping unit legend for the Silver Bow Creek Area 1 Soil/Mine waste Survey.

LEGEND

IMPOUNDED MINE WASTE

- 101 - Silty mine waste, no cover material
- 103 - Silty mine waste, 6-18 inches cover material
- 105 - Silty mine waste, > 48 inches cover material
- 106 - Sandy mine waste, no cover material
- 108 - Sandy mine waste, 6-18 inches cover material
- 109 - Sandy mine waste, 18-48 inches cover material
- 110 - Sandy mine waste, > 48 inches cover material
- 111 - Sandy manganese mine waste, no cover material

FLUVIALLY DEPOSITED MINE MINE WASTE

- 201 - Sandy mine waste, no cover material
- 202 - Sandy mine waste, < 6 inches cover material
- 203 - Sandy mine waste, 6-18 inches cover material
- 204 - Sandy mine waste, 18-48 inches cover material
- 205 - Sandy mine waste, > 48 inches cover material
- 206 - Mixed granitic alluvial sands and sandy mine waste

RAILROAD FILL MATERIAL

- 301 - Natural fill
- 302 - Mine waste rock fill (non acid producing)
- 303 - Mine waste rock and mine waste fill (acid producing)

COVER AND FILL MATERIAL

- 401 - Natural sandy granitic alluvium fill
- 402 - Manganese ore piles
- 403 - Sandy manganese waste (non acid producing)

- 404 - Solid and fractured slag
- 405 - Man made materials mixed with natural alluvium
- 406 - Mine waste rock mixed with natural alluvium

NATURAL SOILS

- 501 - Wetland
- 502 - Wetland, includes thin layers/pockets of mine waste
- 503 - Disturbed upland soil
- 504 - Undisturbed upland soil
- 505 - Poorly drained natural soil
- 506 - Recent alluvium
- 507 - Natural soil contaminated with organic compounds

SUBSCRIPTS AND SYMBOLS

- a - < 12 inches of mine waste
- b - > 12 inches of mine waste
- p - Paved areas
- - Soil observation pit

EXAMPLE

- 401/110bp 401 - cover material
- 110 - mine waste
- b - > 12 inches of mine waste
- p - unit has asphalt cap
- 503-401 example complex between two units

Table 2. Map unit acreages and estimated material volumes for Butte Silver Bow Creek.

MAP UNIT	ACREAGE	ESTIMATED VOLUMES (cu/yds)
IMPOUNDED MINE WASTE:		
101	2.8	13,552
103	1.3	10,325
105	1.1	5,324
106	28.0	158,107
108	7.9	12,745
109	17.1	110,352
110	74.5	480,773
111	2.9	70,180
<hr/>		
SUBTOTAL	135.6	861,358
FLUVIALLY DEPOSITED MINE WASTES:		
201	2.1	6,776
202	5.4	17,424
203	3.5	11,293
204	6.6	21,296
205	37.5	121,000
206	33.4	53,724
<hr/>		
SUBTOTAL	88.5	231,513
RAILROAD FILL MATERIAL:		
301	10.5	169,400
302	1.7	91,960
303	6.5	125,840
<hr/>		
SUBTOTAL	18.7	387,200

MAP UNIT	ACREAGE	ESTIMATED VOLUMES (cu/yds)
COVER AND FILL MATERIAL:		
401	130.2	840,867
402	15.2	441,708
403	2.2	70,987
404	33.2	642,752
405	35.6	2,231,240
406	43.4	1,400,373
<hr/>		
SUBTOTAL	259.8	5,627,927
NATURAL SOILS:		
501	3.4	—
502	0.7	—
503	46.8	—
504	2.1	—
505	10.1	—
506	1.5	—
507	0.2	—
<hr/>		
SUBTOTAL	64.8	—
TOTAL Project Acreage is 515.3 acres*		
Estimated TOTAL volume of Mine Waste is 1,218,711.0 cu/yds**		
* Total of acreage subtotals shown above is greater due to duplication of mapping units for certain areas.		
** This estimate volume includes acid producing railroad fill.		

MAP LEGEND DESCRIPTION

IMPOUNDED MINE WASTE: Map units 101-111 (135.6 acres). These units were identified by finding unaltered horizontally bedded mine waste or mine waste in locations of historic mine waste ponds. They are very poorly drained and display reducing conditions at depth. Slopes range from 0% to 2% with steeper banks of exposed mine waste found around the edge of the mine waste ponds near the Butte Reduction Works. These banks are due to removal of the mine waste for reprocessing. Mine waste thickness varies from a few inches in the mine waste ponds that have had the mine waste removed to over ten feet in other areas. These units are found in close proximity to residential areas above the Civic Center.

Map unit 101: (2.8 acres). Silty exposed mine waste. Vegetative cover is 0%.

Map unit 103: (1.3 acres). Silty mine waste with 6 to 18 inches of cover material. Vegetative cover varies from 5% to 40%.

Map unit 105: (1.1 acres). Silty mine waste with more than 48 inches of cover material. Vegetative cover varies from 30% to 90% depending on type of cover material.

Map unit 106: (28.0 acres). Sandy exposed mine waste. Vegetative cover is 0%.

Map unit 108: (7.9 acres). Sandy mine waste with 6 to 18 inches of cover material. Vegetative cover varies from 5% to 60%.

Map unit 109: (17.1 acres). Sandy mine waste with 18 to 48 inches of cover material. Vegetative cover varies from 30 to 80% depending on type of cover material.

Map unit 110: (74.5 acres). Sandy mine waste with more than 48 inches of cover material. Vegetative cover varies from 30% to 90% depending on type of cover material.

map unit 111: (2.9 acres). Fine black sandy manganese mine waste. Non acid producing and well vegetated (80%-90%) with drought tolerant grass species including western wheatgrass and needle-and-thread grass. These mine waste are very erodible by wind.

FLUVIALLY DEPOSITED MINE WASTE: Map units 201-206 (88.5 acres). These mine waste units are found along Silver Bow Creek and the Metro Storm Drain often in close proximity to residential areas. They are characterized by sandy mine waste layers often interbedded, mixed, or covered with natural alluvium. These deposits contain very few silty mine waste. Slopes range from 0% to 5%. These mine waste units are poorly drained and often display reducing conditions. No mine waste deposits over 30 inches thick were found.

Map unit 201: (2.1 acres). Sandy exposed mine waste. Vegetative cover is 0%.

Map unit 202: (5.4 acres). Sandy mine waste with less than 6 inches of cover material. Vegetative cover is less than 15%.

Map unit 203: (3.5 acres). Sandy mine waste with 6 to 18 inches of cover material. Vegetative cover varies from 40% to 60%.

Map unit 204: (6.6 acres). Sandy mine waste with 18 to 48 inches of cover material. Typical cover materials are granitic alluvial fill and man-made materials and waste. The droughty nature of the fill causes the vegetative cover to be less than 60% and composed of a knapweed and dryland grasses.

Map unit 205: (37.5 acres). These units are the same as 204 units except the depth of cover is greater than 48 inches.

map unit 206: (33.4 acres). Mixed sandy mine waste and granitic alluvium. They are typically near the creek and have been reworked by flooding. Vegetation typically consists of colonial creeping bentgrass, tufted hairgrass and sedges covering 20% to 40% of the area. This unit is sometimes described overlaying another mine waste unit.

RAILROAD FILL MATERIAL: Map units 301-303 (18.7 acres). The natural railroad fill is composed of granitic rocks and alluvium. Within the study area mine waste materials were often used for railroad fill at the manganese stockpile and east of the Civic Center. Fill side slopes are near the angle of repose (80%-100%). Vegetation, if any is comprised of weedy species and found only on the natural fill. Railroad fills have tended to back up flood waters historically. As a result, many fluvially-deposited mine waste units are found adjacent to and ungradient from railroad fills.

- Map unit 301: (10.5 acres). Natural granitic rock and alluvium fill.
- Map unit 302: (1.7 acres). Non acid producing mine waste rock fill.
- Map unit 303: (6.5 acres). Acid producing mixed mine waste and mine waste rock fill.

COVER AND FILL MATERIAL: Map units 401-406 (259.9 acres). These units describe the materials placed over the mine waste or natural surface. Acreage for mapping units shown below are often included in mine waste mapping units, thus duplicating acreage within that unit.

- Map unit 401: (130.2 acres). Natural sandy granitic alluvium fill. These units are typically graded nearly level on the surface with steep side slope around the edges. They represent many residential and commercial areas.
- Map unit 402: (15.2 acres). These units are the manganese ore piles placed over mine waste in the manganese stockpile area. The ore is coarse rock and appears to be non acid producing. Side slopes are at the angle of repose, nearly 100%. Only found as cover material over mine waste deposits.
- Map unit 403: (2.2 acres). Fine black sandy manganese mine waste piles placed over slag and mine waste. Side slopes are left at the angle of repose, nearly 100%. The stable slopes are vegetated with knapweed and other weeds. These mine waste appear to be non acid producing. Only found as cover material over mine waste deposits.
- Map unit 404: (33.2 acres). Consolidated and fractured black slag. The slag in the Manganese Stockpile area was often poured over mine waste but this could not be identified in this study.
- Map unit 405: (138.3 acres). Man made materials mixed with natural alluvium. This included demolition debris such as concrete, broken glass and other waste that often represent abandoned landfills. This unit is often found under residential areas.
- Map unit 406: (43.4 acres). Mine waste rock mixed with natural alluvium. This fill is coarse mine overburden material. Slopes are

generally graded nearly level on top of the fill, leaving steep side slopes around the edges. Vegetative cover is usually less than 40% due to the coarse nature of the material.

NATURAL SOILS: Map units 501-507 (64.8 acres). These units are natural soils that have not been reworked by mining.

Map unit 501: (3.4 acres). Natural cattail wetland along Blacktail Creek.

Map unit 502: (0.7 acres). Blacktail Creek wetland that contains intermittent thin layers and pockets of mine waste. Surface characteristics are identical to unit 501.

Map unit 503: (46.8 acres). Natural upland soil that has been disturbed. The parent material is well drained sandy granitic alluvium. Slopes range from 0% to 20% averaging around 4%. These units often underlie urban development. They are well vegetated with drought tolerant grasses, shrubs and knapweed.

Map unit 504: (2.1 acres). Natural upland soil. Probable soil classification would be coarse-loamy, mixed, Aridic Haploborolls. Parent material is well drained sandy granitic alluvium. Slopes vary from 0% to 12% averaging around 5%. These units are found primarily on the western end of the study area. They are well vegetated with drought tolerant grasses, shrubs and knapweed.

Map unit 505: (10.1 acres). Poorly drained natural soils. These soils are found in the marshy areas along the north side of the Metro Storm Drain. They are highly organic deep soils, often devoid of live vegetation due to their close proximity to mine waste. The vegetation is primarily sedges. A possible soil classification might be fine-loamy, mixed, Fluvaquentic Haploborolls.

Map unit 506: (1.5 acres). Recent natural granitic alluvium found in Blacktail Creek.

Map unit 507: (0.2 acres). Natural upland soils, as in map unit 504, that have been contaminated with an organic compound such as oil. Initial appearance is similar to nonvegetated dark colored mine waste. This unit is found just west of the Interstate-90 bridge across Silver Bow Creek and south of the creek.

APPENDIX A

Soil Profile Descriptions

SITE DESCRIPTION

```

: : : : :
SOIL SERIES: 504          SITE NUMBER:          1      COUNTY : Silver Bow
TAXON      : Fluvent
LOCATION    : map
  
```

```

DATE      : 06/08/89    0 ELEVATION :      0F      0M PRECIP : 0.0 IN 0.0MM
MATERIAL  : crystl. alluv. VEGETATION : shrubs & grass LAND USE: disturbed land
DRAINAGE  : well        PERMEABILITY: med. to rapid EROSION : moderate
POSITION  : footslope   LANDFORM    : alluvial fan  NUM.HOR.: 5
SLOPE     : 2% 1.2 D    ASPECT      : n
  
```

PROFILE DESCRIPTION

```

: : : : :
          DEPTH      COLOR      CF  STR CONS RT  PR
HOR.  NO.  (IN)  MOIST    DRY      TEXT  %  gsk dm sp asl ask  pH EFF BND
: : : : :

A      1    0- 13 10YR 5/5      0/0  cos  20  111 1111 372 362  0.0 1  11
Ab     2    13- 28 10YR 3/2     0/0  sil  10  111 1122 352 322  0.0 1  11
C1     3    28- 36 10YR 5/5     0/0  cos  20  111 1111 111 111  0.0 1  11
C2     4    36- 44 10YR 4/3     0/0  ls   10  111 1111 111 111  0.0 1  11
C3     5    44- 49 10YR 5/5     0/0  cos  10  111 1111 111 111  0.0 1  11
  
```

COMMENTS

```

: : : : :
CF = coarse fragment (%)  STR = structure grade, size, and kind
CONS = moist, dry, sticky, plastic consistence  RT = root amount, size, location
PR = pore amount, size, kind  EFF = effervesence  BND = boundary thickness, shape
  
```

SITE:

Natural undisturbed soil

HORIZON:

Natural

SITE DESCRIPTION

```

SOIL SERIES: 106          SITE NUMBER: 14      COUNTY : Silver Bow
TAXON      : Tailings
LOCATION    : Mn Stockpile

```

```

DATE       : 06/09/89    0 ELEVATION   :      OF      OM PRECIP   : 0.0 IN   0.0MM
MATERIAL   : tailings    VEGETATION  :bare ground  LAND USE:mill tailings
DRAINAGE   : poor        PERMEABILITY:medium      EROSION :severe
POSITION   : level slope LANDFORM    :disturbed landNUM.HOR.:    3
SLOPE      : 1Z 0.6 D    ASPECT      :s

```

PROFILE DESCRIPTION

		DEPTH		COLOR			CF	STR	CONS	RT	PR			
HOR.	NO.	(IN)	MOIST	DRY	TEXT	Z	gsk	dmsp	asl	ask	pH	EFF	BND	

C1	1	0- 17	10YR	5/3	0/0	s	0	111	1111	111	111	0.0	1	11
C2	2	17- 59	5Y	7/9	0/0	s	0	111	1111	111	111	0.0	1	11
C3	3	59- 76	N6	0/0	0/0	s	0	111	1111	111	111	0.0	1	11

COMMENTS

```

.....
CF = coarse fragment (Z)      STR = structure grade, size, and kind
CONS = moist,dry,sticky,plastic consistence      RT = root amount, size, location
PR =pore amount,size,kind      EFF =effervesence      BND =boundary thickness,shape

```

SITE:

Shovels became copper plated

HORIZON:

Tailings

Tailings

Gleyed and yellow tailings


```
DATE      : 06/09/89      0 ELEVATION   :      OF      OM PRECIP   : 0.0 IN    0.0MM
MATERIAL  : tailings      VEGETATION :sedge & rush LAND USE:mill tailings
DRAINAGE  : poor          PERMEABILITY:medium      EROSION :moderate
POSITION  : level slope   LANDFORM   :glacl. outwashNUM.HOR.:      4
SLOPE     :      3% 1.8 D ASPECT      :s
```

.....

COMMENTS

SITE:

HORIZON:

Tailings

Mixed tailings and natural material

Natural alluvial sand

SITE DESCRIPTION

```

SOIL SERIES: 405          SITE NUMBER:          32      COUNTY   : Silver Bow
TAXON           : Disturbed
LOCATION          : Map

```

```
DATE      : 06/12/89      0 ELEVATION      :      0F      0M PRECIP      : 0.0 IN      0.0MM
MATERIAL   : crysl. alluv. VEGETATION      : mix shortgrass LAND USE: landfill
DRAINAGE   : well          PERMEABILITY: med. to rapid EROSION : slight
POSITION   : level slope   LANDFORM        : glacl. outwash NUM. HOR.:      2
SLOPE      : 1% 0.6 D      ASPECT          : n
```

PROFILE DESCRIPTION

		DEPTH		COLOR		CF		STR	CONS	RT	PR			
HOR.	NO.	(IN)	MOIST		DRY	TEXT	Z	gsk	dmsh	asl	ask	pH	EFF	BND

C1	1	0- 14	10YR 3/2		0/0	1	20	111	1111	111	111	0.0	1	11
C2	2	14- 70	10YR 4/2		0/0	s-sk180		111	1111	111	111	0.0	1	11

COMMENTS

```

.....
CF = coarse fragment (Z)      STR = structure grade, size, and kind
CONS = moist,dry,sticky,plastic consistence      RT = root amount, size, location
PR =pore amount,size,kind      EFF =effervesence      BND =boundary thickness,shape

```

SITE:

An old landfill that may overlay tailings

HORIZON:

Alluvial fill
Glass and garbage

SITE DESCRIPTION

```

:.....:
SOIL SERIES: 108          SITE NUMBER:      44      COUNTY   : Silver Bow
TAXON       : tailings
LOCATION      : Civic Center
  
```

```

DATE       : 06/13/89      0 ELEVATION   :      OF      OM PRECIP : 0.0 IN  0.0MM
MATERIAL    : tailings     VEGETATION  :bare ground  LAND USE:urban
DRAINAGE    : poor        PERMEABILITY:medium      EROSION :moderate
POSITION    : level slope  LANDFORM    :glac1. outwashNUM.HOR.: 5
SLOPE       : 17 0.6 D    ASPECT       :s
  
```

PROFILE DESCRIPTION

```

:.....:
          DEPTH      COLOR          CF STR CONS RT PR
HOR.  NO.  (IN)  MOIST    DRY      TEXT  %  gsk dmsp asl ask  pH EFF BND
:.....:

C1      1   0- 9 10YR 4/3          0/0 1s   10  111 1111 111 111  0.0 1  11
C2      2   9- 15 10YR 6/6        0/0  s    0  111 1111 111 111  0.0 1  11
C3      3  15- 63 5Y  7/4          0/0  s    0  111 1111 111 111  0.0 1  11
C4      4  63- 68 5Y  6/1          0/0 cos   0  111 1111 111 111  0.0 1  11
C5      5  68- 74 10YR 6/4        0/0  si    0  111 1223 111 111  0.0 1  11
  
```

COMMENTS

```

:.....:
CF = coarse fragment (%)   STR = structure grade, size, and kind
CONS = moist,dry,sticky,plastic consistence  RT = root amount, size, location
PR =pore amount,size,kind  EFF =effervesence  BND =boundary thickness,shape
  
```

SITE:

Tailings pond underneath the Civic Center east parking lot

HORIZON:

Fill
 Tailings
 Yellow tailings
 Grey tailings
 Silty tailings

APPENDIX B

Codes Used for Soil Profile Descriptions

Table I-9. Index for effervescence in HCl, and horizon boundary in the PEDFORM system.

Effervescence		Lower Horizon Boundary	
Code		Code Distinctness	Code Shape
01	noncalcareous	01 abrupt (<1in.)	01 smooth
02	slight	02 clear (1-2.5in.)	02 wavy
03	moderate	03 gradual (2.5-5in.)	03 irregular
04	violent	04 diffuse (>5in.)	04 broken
		05 arbitrary	05 arbitrary
		06 not reached	06 not reached

Table 1-8. Index for pore abundance, size, and kind in the PEDFORM system.

Code	Size	Code	Kind
01	none	01	none
02	micro and very fine	02	irregular and tubular
03	very fine (.1-.5mm)	03	tubular
04	fine and very fine	04	tubular continuous
05	fine (.5-2mm)	05	tubular discontinuous
06	medium and fine	06	vesicular
07	medium (2-5mm)	07	vesicular and tubular
08	coarse and medium	08	interstitial voids between beds
09	coarse (>5mm)	09	interstitial voids between rocks

CODE	ABUNDANCE CLASS	VERY FINE	FINE	MEDIUM	COARSE
		(NUMBER/DH**2)			

01	none				
02	trace				
03	few	<10	<10	<1	<1
04	few to common				
05	common	10-100	10-100	1-10	1-5
06	common to many				
07	many	>100	>100	>10	>5

Table I-7. Index for root abundance, size, and location in the PEDFORM system.

Code	Size	Code	Location
01	none	01	none
02	very fine (0.1-1mm)	02	throughout horizon
03	fine and very fine	03	between peds
04	fine (1-2mm)	04	flattened in cracks
05	medium and fine	05	flattened around rocks
06	medium (2-5mm)	06	mat at top of horizon
07	coarse and medium		
08	coarse (>5mm)		
09	fine and coarse		

Code	Abundance CLASS	Very fine	Fine	Medium	Coarse
		(NUMBER/DIA*2)			
01	none				
02	trace				
03	few	<10	<10	<1	<1
04	few to common				
05	common	10-100	10-100	1-10	1-5
06	common to many				
07	many	>100	>100	>10	>5

Table I-6. Index for soil consistence in the PEDFORM system.

Code	Dry consistence	Code	Moist consistence
01	loose	01	loose
02	soft: easily crushes to powder	02	very friable: crushes under gentle pressure
03	slightly hard: easily broken between thumb and finger	03	friable: crushes easily under moderate pressure between thumb and finger
04	hard: easily broken in hand	04	firm: crushes under moderate pressure between thumb and finger
05	very hard: broken in hands with difficulty	05	very firm: barely crushable between thumb and finger
06	extremely hard: cannot be broken in hands	06	extremely firm: crushes under strong pressure in hand
07	indurated	07	indurated
Code	Wet stickiness	Code	Wet plasticity
01	nonsticky: no adherence	01	nonplastic: no wire formed
02	slightly sticky: adheres to thumb and finger but comes off one cleanly	02	slightly plastic: wire forms but easily deformed
03	sticky: soil adheres and stretches before pulling apart	03	plastic: wire forms, moderate pressure required to deform
04	very sticky: soil adheres to both fingers	04	very plastic: wire forms, much pressure required to deform

Table I-5. Index for structure grade, size, and kind used in the PEDFORM system.

Code	Structure grade	Code	Structure kind
01	massive	01	massive
02	weak: peds barely observable in place and when disturbed peds remain	02	platy
03	weak to moderate	03	granular
04	moderate: peds easily observable and when disturbed most of material consists of peds.	04	subangular blocky
05	moderate to strong	05	angular blocky
06	strong: peds distinctly visible, when disturbed entire soil mass is aggregated	06	prismatic
		07	columnar
		08	wedge

Code	Size Class	Diameter of granules	Thickness of plates (mm)	Diameter of blocks	Diameter of prisms
01	very fine	<1	<1	<5	<10
02	fine	1-2	1-2	5-10	10-20
03	medium	2-5	2-5	10-20	20-50
04	coarse	5-10	5-10	20-50	50-100
05	very coarse	>10	>10	>50	>100

APPENDIX C-2

Soils and Tailings Sample Site Locations

Sampling Site	Elevation	State Plane Coordinates		Location Description
		East	North	
AI-SO-100	5411.0	1188619	652556	
AI-SO-101	5415.0	1189181	652691	
AI-SO-102	5412.0	1189154	652542	
AI-SO-103	5439.0	1188919	652996	
AI-SO-104	5415.0	1189936	652359	
AI-SO-105	5420.0	1189944	652211	
AI-SO-106	5418.0	1189938	652116	
AI-SO-107	5422.0	1190639	652219	
AI-SO-108	5415.0	1190721	652088	
AI-SO-109	5419.0	1191133	652365	
AI-SO-110	5423.0	1191764	652144	
AI-SO-111	5425.0	1192211	651973	
AI-SO-112	5421.0	1190811	652047	
AI-SO-113	5430.0	1191638	651414	
AI-SO-114	5435.0	1191929	651056	
AI-SO-115	5433.0	1193968	651006	
AI-SO-116	5436.0	1194068	650939	
AI-SO-117	5439.0	1194571	651068	
AI-SO-118	5439.0	1194785	651877	
AI-SO-119	5434.0	1195443	651848	
AI-SO-120	5449.0	1195726	652189	
AI-SO-121	5439.0	1197100	651434	
AI-SO-122	5439.0	1197684	651403	
AI-SO-123	5443.0	1198381	651303	
AI-SO-124	5445.0	1198671	651494	
AI-SO-125	5445.0	1198684	651378	
AI-SO-126	5447.0	1199102	651561	
AI-SO-127	5450.0	1199171	651326	
AI-SO-128	5447.0	1199882	651688	
AI-SO-129	5448.0	1199935	651559	
AI-SO-130	5448.0	1200131	651293	
AI-SO-131	5452.0	1200456	652251	
AI-SO-132	5457.0	1200752	652773	
AI-SO-133	5468.0	1202648	653289	
AI-SO-134	5468.0	1202648	653319	
AI-SO-135	5443.0	1197286	650895	
AI-SO-136	5439.0	1197400	651002	
AI-SO-137	5453.0	1200738	652403	
AI-SO-138	5442.0	1198600	650287	
AI-SO-139	5442.0	1197483	651196	
AI-SO-140	5478.0	1201600	654107	
AI-SO-141	5473.0	1201716	654074	
AI-SO-142	5487.0	1203208	653944	
AI-SO-143	5492.0	1202357	654513	
AI-SO-144	5467.0	1202279	653522	
AI-SO-145	5441.0	1196518	651255	
AI-SO-146	5490.0	1203619	654110	
AI-SO-147	5525.0	1204308	654170	
AI-SO-148	5452.0	1200456	652251	
AI-SO-149	5455.0	1195436	651674	

Sampling Site	Elevation	State Plane Coordinates		Location Description
		East	North	
AI-SD-150	5443.0	1195098	651144	
AI-SD-151	5450.0	1195327	651789	
AI-SD-152	5449.0	1195279	652320	
AI-SD-160	5437.0	1194319	650753	
AI-SD-161	5435.0	1193596	650691	
AI-SD-162	5433.0	1193328	650798	
AI-SD-163	5433.0	1193507	650775	
AI-SD-164	5432.0	1193740	651037	
AI-SD-165	5434.0	1193257	650912	
AI-SD-170	5479.0	1204105	653711	
AI-SD-171	5469.0	1201439	653641	
AI-SD-172	5452.0	1200345	652473	
AI-SD-173	5447.0	1199882	651689	
AI-SD-174	5450.0	1199106	651785	
AI-SD-175	5452.0	1198156	651998	
AI-SD-176	5462.0	1197164	651519	
AI-SD-177	5439.0	1197283	651447	
AI-SD-178	5423.0	1192046	652025	
AI-SD-179	5453.0	1199406	650860	
AI-SD-180	5451.0	1199164	651191	
AI-SD-181	5451.0	1197850	650869	
AI-SD-182	5443.0	1197474	651156	
AI-SD-183	5443.0	1197305	650846	
AI-SD-184	5444.0	1195300	652300	
AI-SD-185	5455.0	1195757	651516	
AI-SD-186	5464.0	1194299	651400	
AI-SD-187	5453.0	0	0	
AI-SD-500	5439.0	1194794	651876	
AI-SD-501	5447.0	1194261	651985	
AI-SD-502	5448.0	1194160	652169	
AI-SD-503	5439.0	1193851	651920	
AI-SD-504	5439.0	1194046	651727	
AI-SD-505	5431.0	1194110	651086	
AI-SD-506	5435.0	1193717	651585	
AI-SD-507	5435.0	1193950	651433	
AI-SD-508	5431.0	1194119	651301	
AI-SD-509	5433.0	1193732	651191	
AI-SD-510	5433.0	1193687	651069	
AI-SD-511	5437.0	1193567	651016	
AI-SD-512	5432.0	1193483	651176	
AI-SD-513	5437.0	1193598	651562	
AI-SD-514	5439.0	0	0	
AI-SD-515	5433.0	1192875	650898	
AI-SD-516	5425.0	1192414	651631	
AI-SD-517	5428.0	1191713	651316	
AI-SD-518	5420.0	1191089	652201	
AI-SD-519	5427.0	1190741	651744	
AI-SD-520	5423.0	1190913	652356	
AI-SD-521	5425.0	1192396	651151	
AI-SD-522	5424.0	1192159	651526	

Sampling Site	Elevation	State Plane Coordinates		Location Description
		East	North	
AI-SO-523	5426.0	1191915	651854	
AI-SD-524	5420.0	1191473	651768	
AI-SO-525	5423.0	1191115	651767	
AI-SO-526	5421.0	1191333	652035	
AI-SO-601	5523.0	1204771	654343	
AI-SO-602	5495.0	1203659	654549	
AI-SO-603	5486.0	1203956	653945	
AI-SO-604	5481.0	1204104	653716	
AI-SO-605	5494.0	1203057	654719	
AI-SO-606	5494.0	1203205	654384	
AI-SO-607	5484.0	1203356	653879	
AI-SO-609	5479.0	1203506	653410	
AI-SO-610	5491.0	1202289	654294	
AI-SD-611	5489.0	1202555	653972	
AI-SO-612	5489.0	1202765	653626	
AI-SO-613	5488.0	1203021	653496	
AI-SO-614	5475.0	1203140	653292	
AI-SD-615	5476.0	1202868	653352	
AI-SO-616	5488.0	1202452	653796	
AI-SO-617	5468.0	1202546	653297	
AI-SO-618	5471.0	1202046	653868	
AI-SO-619	5470.0	1202191	653606	
AI-SO-620	5466.0	1202139	653353	
AI-SO-622	5465.0	1201814	653233	

APPENDIX C-3

Soils Boring Logs

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-141

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Sand</u> , silty, brown, very coarse with some gravel, (fill)	6A		0-1"	141-01	0 <u>5.9</u>	30 <u>5.6</u>	194 <u>41.1</u>	92 <u>18.3</u>	153 <u>93.2</u>	0 <u>.43</u>
0.08-1.66	<u>Sand</u> , silty, brown, very coarse with gravel fill	6A		1-20"	141-02	0 <u>29.3</u>	19 <u>8.8</u>	227 <u>94.6</u>	81 <u>96.4</u>	192 <u>129</u>	6.1 <u>.40</u>
1.66-2.75	<u>Sand</u> , silty, brown to black, (land fill material)	6D		20-33"	141-03	69 <u>78.1</u>	31 <u>9.4</u>	684 <u>863</u>	71 2680	1288 <u>22400</u>	4.6 <u>12.0</u>
2.75-7.0	<u>Sand</u> , brown-orange, medium to coarse, with 5% angular gravel	6A		33-84"	141-04	73	34	534	713	1907	11
7.0-7.67	<u>Silt</u> , sandy, dark brown to black, micaceous, with organics	8A		84-92"	141-05	0	27	1997	406	2028	23
	TD = 7.67'										

⁽¹⁾ Lithologic units described in Section 4.3

SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-142

[illegible]

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-143

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Sand</u> , silty, dark brown, very coarse	4		0-1"	143-01	26	25	546	284	497	8.9
0.08-1.5	Slag in silt matrix	6C		1-18"	143-02	333	34	4021	903	366	4.6
1.5-2.42	<u>Sand</u> , silty, brown-yellow, medium to coarse, with green inclusions and raw ore (tailings)	2		18-29"	143-03	516 <u>516</u>	33 <u>5.1</u>	2071 <u>3350</u>	1281 <u>1360</u>	659 <u>2650</u>	4.3 <u>5.2</u>
	<u>Sand</u> , silty, red, yellow, black, and tan, medium to coarse, with free pyrite (waste rock)	6A		29-45"	143-04	314	37	312	1105	551	3.1
2.42-3.66											
3.66-4.25	<u>Sand</u> , silty, red, yellow, brown, orange, with wood and brick fragments	6A/6D		45-51"	143-05	255	30	376	650	368	4.8
4.25-5.33	<u>Sand</u> , silty, light brown, medium to coarse	6A		51-64"	143-06	186	24	441	159	365	4.8
	TD = 5.33'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-144

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.25	<u>Sand</u> , medium to coarse	6A		0-3"	144-01	0 <u>46.5</u>	26 <u>30.8</u>	429 <u>260</u>	249 <u>169</u>	475 <u>466</u>	9.6 <u>1.5</u>
0.25-1.0	<u>Sand</u> , slightly silty, yellow, brown, medium to coarse, with gravel (tailings)	6A		3-12"	144-02	196 <u>180</u>	22 <u>5.9</u>	686 <u>517</u>	333 <u>351</u>	632 <u>670</u>	2.7 <u>1.9</u>
1.0-1.42	<u>Sand</u> , red-brown, orange, very coarse, angular (tailings)	2		12-17"	144-03	685 <u>424</u>	5.8 <u>1.4</u>	696 <u>450</u>	789 <u>417</u>	428 <u>401</u>	6.8 <u>0.4</u>
1.42-1.66	<u>Sand</u> , silty, gray- brown, medium to coarse	2		17-20"	144-04	420	9.5	721	226	743	4.2
1.66-2.0	<u>Sand</u> , red-orange, medium (tailings)	2		20-24"	144-05	646	0	1259	172	1428	0
2.0-2.83	<u>Sand</u> , slightly silty, orange, medium to coarse	2		24-34"	144-06	582 <u>524</u>	15 <u>0.8</u>	618 <u>209</u>	154 <u>444</u>	557 <u>254</u>	1.2 <u>0.39</u>
2.83-3.83	<u>Sand</u> , slightly silty, yellow-gray, medium, grading to coarse gray sand	2		34-46"	144-07	257	36	279	261	303	5.4
3.83-4.66	<u>Sand</u> , slightly silty, yellow-gray, fine to very coarse	2		46-56"	144-08	380	14	804	422	441	8.5
4.66-5.5	<u>Sand</u> , tan, coarse, very angular	2		56-66"	144-09	218 <u>173</u>	28 <u>.76</u>	866 <u>203</u>	888 <u>935</u>	487 <u>2210</u>	12 <u>6.8</u>
5.5-5.66	<u>Sand</u> , silty, brown	4		66-68"	144-10	1819 <u>1780</u>	39 <u>0.91</u>	7484 <u>7040</u>	3451 <u>3040</u>	2294 <u>2410</u>	3.5 <u>8.1</u>
5.66-6.17	<u>Silt</u> with clay, brown, micaceous, grading to black mud at base	8A		68-74"	144-11	586	18	14150	645	214	2.6
	TD = 6.17'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-145

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Silty clay loam, dark brown	4		0-1"	145-01	134 <u>144</u>	29 <u>50.1</u>	628 <u>783</u>	604 <u>810</u>	1816 <u>1510</u>	9.3 <u>7.7</u>
0.08-1.42	Silt loam, dark brown, micaceous	4		1-17"	145-02	260 <u>255</u>	23 <u>8.1</u>	1635 <u>1130</u>	600 <u>671</u>	2296 <u>2150</u>	19 <u>7.8</u>
1.42-2.33	<u>Silt</u> , sandy, gray-orange, mottled	4		17-28"	145-03	158	26	1308	452	1646	4.1
2.33-2.5	<u>Sand</u> , orange, very fine	4		28-30"	145-04	160	23	1552	424	1233	15
2.5-4.08	<u>Clay</u> , silty, black, gray	4		30-49"	145-05	615 <u>697</u>	21 <u>15.1</u>	2998 <u>2960</u>	902 <u>513</u>	3442 <u>1960</u>	15 <u>1.5</u>
4.08-4.66	Peat, black	8A		49-56"	145-06	1103 <u>1210</u>	18 <u>17.1</u>	7503 <u>6420</u>	1081 <u>1060</u>	2858 <u>1990</u>	7.1 <u>7.7</u>
	TD = 4.66'										

⁽¹⁾ Lithologic units described in Section 4.3

SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-146

[illegible]⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-147

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Slag, debris	6C/6D		0-1"	147-01	165 <u>119</u>	20 <u>7.7</u>	2668 <u>1000</u>	340 <u>206</u>	3139 <u>3400</u>	26 <u>13.2</u>
0.08-0.5	<u>Sand</u> , light brown, very fine (tailings)	2		1-6"	147-02	137 <u>151</u>	22 <u>3.3</u>	613 <u>342</u>	395 <u>318</u>	630 <u>855</u>	8.8 <u>2.1</u>
0.5-1.08	<u>Sand</u> , white, orange, very fine	2		6-13"	147-03	128	39	24	210	145	-
1.08-1.83	<u>Sand</u> , brown-orange, fine to medium, grading to angular coarse with gravel	4		13-22"	147-04	219 <u>148</u>	28 <u>2.5</u>	3907 <u>743</u>	1048 <u>772</u>	4336 <u>7560</u>	47 <u>20.7</u>
1.83-2.25	Sandy clay loam, brown, red-brown, organics, with some gravel	8A		22-27"	147-05	157 <u>163</u>	25 <u>7.8</u>	3222 <u>1780</u>	284 <u>276</u>	1938 <u>1870</u>	16 <u>6.1</u>
2.25-2.5	Sandy loam with gravel, brown	8B		27-30"	147-06	42	25	1527	196	1912	13
	TD = 2.5'										

⁽¹⁾ Lithologic units described in Section 4.3

BORING NUMBER: A1-SD-148

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-149

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Waste rock, yellow-orange, brown, pyritic (railroad embankment)	5		0-1"	149-01	288 <u>285</u>	17 <u>7.8</u>	654 <u>800</u>	0 <u>27.8</u>	171 <u>133</u>	3.9 <u>.41</u>
	TD = 0.08'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-150

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Silt</u> , brown, black, salts on surface	3		0-1"	150-01	286 <u>695</u>	9 <u>1.1</u>	0 <u>660</u>	1107 <u>3300</u>	6483 <u>5460</u>	12 <u>19.4</u>
0.08-7.92	<u>Silt</u> with clay, black, brown (may be carbon ash)	3		1-95"	150-02	369 <u>636</u>	27 <u>1.0</u>	0 <u>104</u>	2013 <u>3480</u>	12400 <u>10700</u>	28 <u>14.1</u>
7.92-9.57	<u>Sand</u> , gray, fine	2		95-115"	150-03	137	8.6	0	285	1587	11
	TD = 9.57'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-151

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.17	Waste rock, sandy, pyritic (railroad embankment surface)	5		0-2"	151-01	634 <u>617</u>	26 <u>2.8</u>	766 <u>1040</u>	894 <u>822</u>	1162 <u>1050</u>	12 <u>0.38</u>
0.17-0.5	Sandy loam, brown, 40% angular rock fragments	5		2-6"	151-02	380 <u>149</u>	55 <u>.81</u>	2784 <u>2370</u>	2882 <u>3800</u>	6003 <u>7610</u>	32 <u>8</u>
	TD = 0.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-152

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-1.33	Sand with silt, white, orange, tailings under slag wall	2		0-16"	152-01	1328	17	1912	1662	2075	20
1.33-2.75	Sand, silty, yellow, light gray (tailings)	2		16-33"	152-02	1813 <u>2310</u>	.7 <u>1.3</u>	3532 <u>3660</u>	1254 <u>805</u>	1500 <u>1430</u>	8.4 <u>2.8</u>
2.75-3.67	Clay, silty, dark gray, micaceous	2		33-44"	152-03	1913 <u>3180</u>	6.0 <u>1.3</u>	25600 <u>22200</u>	1470 <u>859</u>	9422 <u>7880</u>	12 <u>22</u>
	TD = 3.67'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-170

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Sand</u> , silty, brown, fine to coarse, with gravel	7		0-1"	170-01	0 <u>61.3</u>	27 <u>15</u>	768 <u>811</u>	276 <u>154</u>	355 <u>505</u>	7.7 <u>3.1</u>
0.08-0.58	<u>Sand</u> with gravel, light brown, medium to very coarse	8B		1-7"	170-02	0 <u>18.5</u>	18 <u>12.8</u>	384 <u>165</u>	100 <u>52</u>	307 <u>136</u>	3.8 <u>.4</u>
0.58-1.25	<u>Sand</u> , tan, very coarse	8B		7-15"	170-03	0 <u>11.3</u>	21 <u>14.3</u>	470 <u>90.8</u>	88 <u>55.9</u>	181 <u>85.5</u>	3.3 <u>.38</u>
1.25-3.5	<u>Sand</u> , tan, medium to very coarse, with gravel	8B		15-42"	170-04	0	24	157	26	36	7.6
3.5-5.5	<u>Sand</u> , silty, tan, fine to medium, few iron oxide lenses - clay 52-56"	8B		42-66"	170-05	0	27	324	65	77	5.0
	TD = 5.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-171

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Silt loam, sandy, dark brown	6A		0-1"	171-01	21	34	1700	952	4220	14
0.08-0.83	Silt loam, sandy, dark brown	6A		1-10"	171-02	81	32	771	646	1913	14
0.83-1.33	<u>Sand</u> , brown, fine to coarse	6A		10-16"	171-03	288	53	964	2224	2238	9.4
						<u>182</u>	<u>8.5</u>	<u>1590</u>	<u>2480</u>	<u>1530</u>	<u>5.1</u>
1.33-3.0	Sandy loam, dark brown	6A		16-36"	171-04	0	32	515	393	517	3.5
						<u>57.7</u>	<u>14.4</u>	<u>404</u>	<u>569</u>	<u>527</u>	<u>1.9</u>
3.0-4.0	<u>Sand</u> , red-brown, fine to coarse with gravel	6A		36-48"	171-05	0	32	9.6	1039	1643	13
4.0-5.5	<u>Silt</u> with clay, dark brown, with minor lenses of medium to coarse sand	6A		48-66"	171-06	68	32	700	786	3756	20
5.5-7.25	<u>Silt</u> , slightly sandy, brown, with minor clay	6A		66-87"	171-07	12	38	431	1044	3600	12
7.25-8.0	<u>Sand</u> , silty, red-brown, medium to coarse	6A		87-96"	171-08	0	31	0	709	3123	14
						<u>23.1</u>	<u>5.2</u>	<u>173</u>	<u>729</u>	<u>1970</u>	<u>3.3</u>
	TD = 8.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-172

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.17	Silty clay loam, black	7		0-2"	172-01	80	30	1001	735	2571	10
0.17-0.75	Silty clay loam, black, with minor gravel	7		2-9"	172-02	210	28	1345	668	3325	13
0.75-1.67	Sandy clay loam, red-brown, with 20% gravel	7		9-20"	172-03	0	11	372	160	551	4.1
	TD = 1.67'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-173

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Silty clay, brown, with salts on surface (tailings)	4		0-1"	173-01	127 <u>258</u>	27 <u>12.1</u>	3079 <u>3420</u>	543 <u>339</u>	5713 <u>5240</u>	11.0 <u>9</u>
0.08-0.92	Silty clay, red-brown, black, micaceous (tailings)	4		1-11"	173-02	250 <u>274</u>	29 <u>11.8</u>	3914 <u>3560</u>	617 <u>615</u>	5593 <u>4600</u>	20 <u>8.8</u>
0.92-1.67	<u>Sand</u> , red-brown, black, micaceous, slag fragments	4		11-20"	173-03	259 <u>498</u>	19 <u>2.3</u>	2507 <u>3740</u>	345 <u>349</u>	432 <u>1340</u>	3.7 <u>2.5</u>
1.67-2.42	<u>Sand</u> , green-gray, coarse to very coarse	4		20-29"	173-04	292 <u>818</u>	19 <u>1.1</u>	6357 <u>8560</u>	478 <u>241</u>	940 <u>1230</u>	7.8 <u>.43</u>
	TD = 2.42'										

⁽¹⁾ Lithologic units described in Section 4.3

SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-174

[illegible]⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-175

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.17	<u>Sand</u> , silty, black	7		0-2"	175-01	133	28	1434	689	5685	23
0.17- 1.5	<u>Sand</u> , silty, light brown, fine to coarse	7		2-18"	175-02	150 <u>116</u>	23 <u>2.5</u>	1862 <u>533</u>	596 <u>519</u>	3581 <u>7020</u>	29 <u>17.8</u>
1.5-3.5	<u>Silt</u> , light gray, micaceous	7		18-42"	175-03	47	26	531	501	4234	20
3.5-4.83	<u>Sand</u> , light gray, medium to coarse, with minor gravel	7		42-58"	175-04	0 <u>25.1</u>	33 <u>3.2</u>	0 <u>89.2</u>	551 <u>573</u>	839 <u>830</u>	7.7 <u>2.1</u>
	TD = 4.83'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-176

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Sand</u> , silty, light gray, fine to coarse	5		0-1"	176-01	448 <u>545</u>	23 <u>3.7</u>	660 <u>832</u>	581 <u>427</u>	737 <u>585</u>	4 <u>.41</u>
	TD = 0.08'										

⁽¹⁾ Lithologic units described in Section 4.3

SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-177

[illegible]⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-178

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	<u>Sand</u> , silty, brown, micaceous, with 35% gravel	6A		0-1"	178-01	133 <u>116</u>	25 <u>4.8</u>	1207 <u>759</u>	520 <u>326</u>	4672 <u>3940</u>	18 <u>7.4</u>
0.08-3.92	<u>Sand</u> , slightly silty, brown, medium to coarse, with few rock fragments	6A		1-47"	178-02	0	27	326	303	582	4.5
3.92-5.0	<u>Sand</u> , silty, brown to dark brown, coarse, grading to silt, gray-black, micaceous	6A		47-60"	178-03	140	24	2069	497	4089	16
5.0-6.08	<u>Silt</u> , sandy, black, micaceous, grading to sand, silty, green	6A		60-73"	178-04	275 <u>410</u>	27 <u>9.5</u>	6875 <u>4310</u>	1252 <u>896</u>	2378 <u>16100</u>	73 <u>35.3</u>
	TD = 6.08'										

⁽¹⁾ Lithologic units described in Section 4.3

BORING NUMBER: A1-SD-179

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-180

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-6.0	Landfill debris, composite to 72"	6D		0-72"	180-01	61 <u>81.9</u>	35 <u>44.9</u>	700 <u>2750</u>	1171 <u>8330</u>	1174 <u>1660</u>	0 <u>.56</u>
6.0-7.83	Sand, yellow, gray, red-brown, with silty clay and clay, micaceous	4		72-94"	180-02	104 <u>282</u>	31 <u>9.2</u>	1361 <u>1740</u>	784 <u>467</u>	5254 <u>4300</u>	24 <u>12.2</u>
7.83-9.0	Sand, dark gray to gray, medium to very coarse	8B		94-108"	180-03	399 <u>618</u>	19 <u>2.6</u>	8117 <u>6970</u>	606 <u>430</u>	3580 <u>4120</u>	18 <u>40.5</u>
	TD = 9.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-181

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0- 11.25	Landfill debris	6D		0-135"	181-01	117 <u>102</u>	33 <u>12.4</u>	341 <u>600</u>	758 <u>544</u>	2639 <u>1660</u>	15 <u>4.5</u>
11.25- 11.66	<u>Sand</u> , silty, gray, black	4		135-140"	181-02	0	0	583	502	1424	9.1
11.66- 12.08	<u>Clay</u> , silty, black, micaceous	8A		140-145"	181-03	173 <u>221</u>	28 <u>16.2</u>	1306 <u>1020</u>	327 <u>277</u>	2999 <u>2390</u>	6.2 <u>7.6</u>
	TD = 12.08'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-182

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-4.58	Landfill debris	6D		0-55"	182-01	117	28	642	458	3255	11
4.58-4.92	<u>Silt</u> , sandy, black, micaceous	4		55-59"	182-02	278	22	524	329	1253	4.9
4.92-5.33	<u>Sand</u> , silty, light gray, fine to medium	4		59-64"	182-03	189 <u>207</u>	21 <u>3.2</u>	924 <u>392</u>	436 <u>404</u>	2116 <u>4930</u>	16 <u>12.8</u>
		4		64-84"	182-04	137 <u>220</u>	26 <u>3.5</u>	3168 <u>2430</u>	717 <u>539</u>	7666 <u>10500</u>	37.0 <u>27.9</u>
5.33-7.0	<u>Sand</u> , red-brown, fine to coarse	4		84-94"	182-05	1019 <u>1410</u>	21 <u>9.6</u>	13030 <u>8960</u>	1072 <u>648</u>	5973 <u>3450</u>	16 <u>11.8</u>
7.0-7.83	<u>Silt</u> with clay, light gray, micaceous, red brown clay 89-94"	8A									
	TD = 7.83'										

⁽¹⁾ Lithologic units described in Section 4.3

BORING NUMBER: A1-SD-183

⁽¹⁾ Lithologic units described in Section 4.3

SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-184

[illegible]

⁽¹⁾ Lithologic units described in Section 4.3

SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI

BORING NUMBER: A1-SD-185

[illegible]⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-186

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.33	Waste rock, yellow, orange, (railroad embankment)	5		0-4"	186-01	406 <u>657</u>	28 <u>2.2</u>	11940 <u>12400</u>	1110 <u>937</u>	13220 <u>12700</u>	45 <u>39.7</u>
	TD = 0.33'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-187

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (INCHES)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-0.08	Sand, medium to coarse with angular fragments to 1", brown	5		0-1"	187-01	0 <u>75.7</u>	37 <u>3.4</u>	0 <u>886</u>	987 <u>1330</u>	1558 <u>3160</u>	11 <u>19.5</u>
	TD = 0.08'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-500

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.5	<u>Sand</u> , with minor silt, fine to coarse, white to yellow brown with minor iron oxide staining, tailings	1		0-0.1	500-01	275	18	1195	339	1006	18
		2		0.1-1.5	500-02	382	23	1191	876	923	21
4.5-12.0	<u>Sand</u> , with minor silt, fine to medium brown, saturated	2		2.0-3.5	500-03	343	16	1233	535	556	9
		2		4.0-4.5	500-04A	567	38	351	476	624	12
		4		4.5-5.5	500-04B	1402	89	0	6007	8739	18
		4		6.0-7.5	500-05	709 <u>145</u>	133 <u><1</u>	1952 <u>1840</u>	8472 <u>9890</u>	21910 <u>13700</u>	13 <u>12</u>
	green clast in sand at 10'	4		8.0-9.5	500-06	537	67	2092	3961	9309	39
		4		10.0-11.5	500-07	90	32	1592	1078	1655	3
12.0-15.5	<u>Sand</u> , with minor silt, medium to coarse, brown, heaving	8B		12.0-13.5	500-08	8	27	2885	533	1785	14
		8C		14.0-15.5	500-09	0 <u>14</u>	22 <u>1</u>	2831 <u>2530</u>	192 <u>179</u>	824 <u>1350</u>	9 <u>6</u>
	TD = 15.5'										
	<u>Sand</u> , with minor silt, medium yellow with iron oxide staining (shelby tube)	2		0.5-2.5	500-10	310	20	626	588	1061	12
	Bulk Tailings Sample	2		0.5-2.5	500-11	344 <u>293</u>	21 <u><1</u>	1030 <u>180</u>	692 <u>575</u>	665 <u>1550</u>	16 <u>4</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-501

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.0	<u>Gravel</u> , sand, silt, mixed slag, rocks and dirt, black to orange	6C		0-0.1	501-01	1999 <u>3530</u>	0 <u><1</u>	627 <u>312</u>	613 <u>278</u>	1079 <u>728</u>	8 <u><1</u>
4.0-6.0	<u>Sand</u> , medium to coarse, loose, brown, slightly moist	6C		0.1-1.5	501-02	3203 <u>5420</u>	0 <u><2</u>	78 <u>33</u>	692 <u>99</u>	592 <u>125</u>	8 <u><1</u>
		6C		2.0-3.5	501-03	2085	0	435	1519	3293	15
		4		4.0-5.5	501-04	113	30	523	807	1874	7
		4		6.0-7.5	501-05	112 <u>99</u>	35 <u><2</u>	1039 <u>497</u>	1475 <u>1700</u>	3407 <u>4110</u>	26 <u>3</u>
6.0-13.5	<u>Sand</u> , with minor silt, medium to fine brown, occasional gravel clasts	4		8.0-9.5	501-06	270	30	2250	1250	2100	23
		4		10.0-11.5	501-07	230	34	1052	1179	3136	18
		4		12.0-13.5	501-08	70 <u>90</u>	33 <u><2</u>	631 <u>447</u>	1001 <u>2540</u>	1369 <u>4370</u>	16 <u>2</u>
	TD = 13.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-502

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	Topsoil, silty, sandy loam with some roots and organic material, brown	7		0-0.1	502-01	172	37	1447	1364	5033	23
2.0-10.0	<u>Sand</u> , medium to fine, loose, brown, slightly moist, minor gravel	8B		0.1-0.5	502-02	131	33	1019	893	2624	17
		8C		2.0-3.5	502-03	0	29	0	339	589	
		8C		4.0-5.5	502-04	0 <u>17</u>	28 <u>4</u>	0 <u>35</u>	314 <u>118</u>	520 <u>603</u>	10 <u><1</u>
		8C		6.0-7.5	502-05	0	26	0	317	530	6
		8C		8.0-9.5	502-06	0	25	0	207	383	6
10.0-11.5	<u>Sand</u> with gravel, medium to fine, brown to red brown, granite cobble at 10'	8C		10.0-11.5	502-07	0	24	36	4	386	3
	TD = 11.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-503

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-9.5	Sand, with minor silt and organics, fine to very coarse, brown, loose	4		0-0.1	503-01	260 <u>151</u>	53 <u><2</u>	1482 <u>653</u>	2756 <u>3370</u>	6424 <u>6960</u>	37 <u>8</u>
		4		0.1-1.5	503-02	184	43	670	1701	3449	29
		4		2.0-3.5	503-03	170	43	768	1735	3280	17
		4		4.0-5.5	503-04	33	62	1912	3546	12450	44
		4		6.0-7.5	503-05	207	113	2106	7059	31840	73
		4		8.0-9.5	503-06	284	90	2086	5404	18420	55
	TD = 9.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-504

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-6.0	Sand with minor silt, fine to coarse, brown to dark brown, loose, four 0.2 ft thick layers of yellow sandy tailings	4		0-0.1	504-01	136 249	10 <2	838 969	945 1660	5236 4570	17 8
		4		0.1-1.5	504-02	451	27	655	1333	2107	11
		4		2.0-3.5	504-03	629 632	42 <2	268 637	2095 2300	2809 3890	10 3
6.0-8.0	Sand with silt, fine grained, brown, saturated	4		4.0-5.5	504-04	561	47	727	2443	4404	18
		4		6.0-7.5	504-05	326 <10	86 <2	2943 2180	5165 7660	15630 14000	45 11
		4		8.0-9.5	504-06	443	71	2466	4204	14100	50
6.0-17.0	Sand, fine to coarse with minor silt, loose, brown, saturated	4		10.0-11.5	504-07	266 111	54 <2	1285 428	2458 3410	4675 7350	32 6
		4		12.0-13.5	504-08	50	22	1856	2496	2608	23
		4		17.0-18.5	504-09	72 39	29 14	385 64	336 287	2293 1550	16 <1
17.0-18.5	Silt with sand, green, soft, saturated	8B		17.0-18.5	504-09	72 39	29 14	385 64	336 287	2293 1550	16 <1
	TD = 18.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-505

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0 - 0.1	Sand, fine to very fine, very moist, with blue and white salt crust, brown	1		0-0.1	505-01	71 97	22 10	4809 3980	271 256	2017 1960	13 4
	TD = 0.1'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-506

DEPT H (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	Sand with silt and gravel, brown to yellow-brown, moist	4		0-0.1	508-01	21	27	3980	1288	11480	81
		4		0.1-1.5	508-02	488 <u>274</u>	78 <u><2</u>	4737 <u>1230</u>	4880 <u>5430</u>	23580 <u>18400</u>	80 <u>51</u>
2.0-2.5	Clay, gray, soft, saturated	4		2.0-2.5	508-03A	2490 <u>3020</u>	1 <u><3</u>	21080 <u>17100</u>	1998 <u>834</u>	10020 <u>6880</u>	21 <u>139</u>
		4		2.5-3.5	508-03B	397	83	2489	3591	13900	48
2.5-4.8	Sand, medium to fine, with minor gravel and coarse sand, brown to dark reddish brown	4		4.0-4.8	508-04A	1560 <u>3570</u>	37 <u><3</u>	12450 <u>9210</u>	3378 <u>3090</u>	15530 <u>10500</u>	51 <u>14</u>
		4		4.8-5.5	508-04B	2828 <u>3850</u>	5 <u><2</u>	28810 <u>20200</u>	2787 <u>2270</u>	18950 <u>11900</u>	41 <u>24</u>
4.8-8.0	Clay with silt and minor sand, gray to black, soft	4		8.0-7.5	508-05	554	14	2057	8651	30830	75
		4		8.0-9.5	508-08	289	120	2754	7491	38880	87
8.0-10.8	Sand, fine to very fine, minor silt, dark red-brown, saturated	4		10.0-10.8	508-07A	882 <u>322</u>	149 <u><3</u>	1708 <u>927</u>	9548 <u>11100</u>	39980 <u>18200</u>	98 <u>15</u>
		8A		10.8-11.5	508-07B	237	59	309	2852	9088	35
10.8-15.0	Silt with clay, organic rich, light gray to white grading to dark orange brown to black peat/root layer at 11.3'			12.0-13.5	508-08	NO	Sam ple				
		8A		14.0-15.0	508-09A	0 <u>32</u>	6 <u>15</u>	88 <u>78</u>	477 <u>384</u>	1145 <u>1090</u>	8 <u><1</u>
15.0-19.5	Sand, coarse to very coarse, loose, micaceous, saturated, brown, medium to fine at 18'-18.3' (Heaving into auger)	8B		15.0-15.5	508-09B	0	29	0	215	194	--
		8C		18.0-17.5	508-10	0 <u>12</u>	29 <u>15</u>	0 <u>27</u>	215 <u>134</u>	194 <u>432</u>	4 <u><1</u>
	TD = 19.5'										
	Combined sample 508-05 and 06			8.0-9.5	508-11	<u>305</u>	<u><1</u>	<u>1640</u>	<u>167000</u>	<u>23200</u>	<u>28</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-507

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-1.0	<u>Sand</u> with silt and organics, dark brown to black	4		0-0.1	507-01	820 <u>1260</u>	53 <u><2</u>	3064 <u>3480</u>	2835 <u>4120</u>	7799 <u>6610</u>	9 <u>9</u>
		4		0.1-1.0	507-02A	233	34	813	1704	3863	23
1.0-2.0	Sandy silt, brown with orange flakes	4		1.0-1.5	507-02B	1235	88	1004	5793	8999	21
2.0-7.0	<u>Sand</u> , medium, yellow brown, moist, minor silt saturated at 4'. Tailings	2		2.0-3.5	507-03	912	45	1405	2964	3776	30
		2		4.0-5.5	507-04	1089	16	1763	1423	1188	15
		2		6.0-7.0	507-05A	1194 <u>1260</u>	18 <u><2</u>	979 <u>1190</u>	1604 <u>1250</u>	1117 <u>2030</u>	5 <u>4</u>
7.0-8.0	<u>Sand</u> with minor silt, fine medium brown, very moist	4		7.0-7.5	507-05B	1271	112	1518	7323	9751	25
8.0-10.0	<u>Silt</u> with fine sand, brown, saturated	4		8.0-9.5	507-06	431 <u>437</u>	135 <u><1</u>	7009 <u>6610</u>	8526 <u>8980</u>	3443 <u>21600</u>	68 <u>11</u>
10.0 - 13.5	<u>Clay</u> , red grading to brown- gray with 0.15' Peat layer at 11'.	4		10.0-10.5	507-07A	468	86	2172	4847	1597	52
		8A		10.5-11.5	507-07B	104 <u>90</u>	41 <u>19</u>	273 <u>169</u>	1435 <u>862</u>	5013 <u>3590</u>	19 <u>2</u>
		8A		12.0-13.0	507-08A	54	31	643	822	3591	19
		8B		13.0-13.5	507-08B	1	28	931	514	3400	18
13.5 - 14.1	<u>Sand</u> , fine to very coarse, brown, brown to orange	8B		14.0-14.1	507-09	78 <u>148</u>	30 <u>5</u>	867 <u>811</u>	774 <u>1600</u>	1749 <u>2760</u>	12 <u>5</u>
	TD = 14.1'										
	Tailings, sandy, yellow- brown	2		2.0-4.0	507-10	603	28	825	1429	4192	21
	Bulk Tailings	2		2.0-3.5	507-11	1024	36	2232	2587	3876	37

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-508

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-0.1	<u>Sand</u> with silt and gravel, brown	4		0-0.1	508-01	363	16	2300	462	1565	--
0.1-0.5	Tailings, sand with minor silt, medium, white to light gray	2		0.1-0.5	508-02A	293 <u>283</u>	44 <u>61</u>	301 <u>1680</u>	552 <u>585</u>	641 <u>2660</u>	6 <u>7</u>
0.5-8.0	<u>Sand</u> , fine to coarse, brown, saturated, loose	2		0.5-1.5	508-02B		NO	XRF	Data		
		4		2.0-3.5	508-03	540	60	0	2583	3980	27
		4		4.0-5.5	508-05	374	37	1905	1719	2188	18
	(Heaving)	4		6.0-7.0	508-06		NO	XRF	Data		
		4		8.0-8.5	508-07A	450	60	4498	3170	5705	22
8.0-9.5	<u>Silt</u> with clay, and organic material, dark brown to black	8A		8.5-9.5	508-07B	102	31	1911	1022	8366	31
	TD = 9.5'										
	Tailings with sand	2		0.3-2.3	508-04	812	39	873	2412	4089	--

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-509

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-0.1	<u>Sand</u> , silty sand, gravel slag	4		0-0.1	509-01A	838 <u>924</u>	18 <u>6</u>	17260 <u>8440</u>	1855 <u>695</u>	29840 <u>23300</u>	120 <u>61</u>
0.1-2.0	Tailings, sand, fine, yellow orange	4		0.1-1.6	509-02	1909	12	32260	3122	47040	145
2.0-4.0	<u>Sand</u> , fine, gray, with interbedded silt, green, moist	4		2.0-3.5	509-03	1687 <u>1750</u>	13 <u>61</u>	31890 <u>24100</u>	2893 <u>1030</u>	61340 <u>51800</u>	150 <u>270</u>
4.0-5.2	<u>Silt</u> with sand, gray	8A		4.0-5.2	509-04A	1915 <u>4430</u>	3 <u>61</u>	24040 <u>21300</u>	1847 <u>924</u>	15750 <u>20100</u>	48 <u>65</u>
5.2-6.0	Organics, black	8B		5.2-5.5	509-04B	386	21	5634	722	932	9
6.0-22.5	<u>Sand</u> , medium to coarse, brown to orange, saturated, very coarse lenser, heaving into Augers	8C		8.0-9.5	509-06	333 <u>727</u>	21 <u>61</u>	3745 <u>7200</u>	607 <u>745</u>	1477 <u>4000</u>	11 <u>13</u>
	Heaved 1.5'	8C		14.5-16.0	509-07	0	29	636	207	290	7.3
	Sand heaved 8' into Augers										
	TD = 22.5'										
	Silty sand, medium to coarse, brown with salts gray silt with fine sand, orange silty sand top 3"	4		0-1"	509-01A	838	18	17260	1855	29840	120
	Gray silt with fine sand, orange silty sand top 3"	4		0.8-2.8"	509-09	1897	11	44930	3557	83900	223

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-510

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-0.1	Tailings, sand with silt, fine to medium	1		0-0.1	510-01	394	30	4009	1385	3855	28
0-4.7	<u>Sand</u> and gravel slag, black moist	1		0-0.1	510-01A	692 338	20 61	7101 3400	1447 1140	8821 5580	57 20
		6C		0.1-1.5	510-02	529	23	24940	1255	18680	55
		6C		2.0-3.5	510-03	143	20	46380	1112	32880	94
		6C		4.0-4.7	510-04A	825	36	33030	2281	11880	29
4.7-4.9	<u>Silt</u> with clay, and fine sand, gray, pottery	4		4.7-4.9	510-04B	1811	16	30780	2068	8436	7
4.9-6.8	<u>Sand</u> , medium to coarse, dark brown to yellow-brown, saturated	4		4.9-5.5	510-04C	515	25	7981	1114	2699	8
6.8-7.5	<u>Silt</u> with sand and organic material, dark brown	8A		6.0-7.5	510-05	257	36	5683	1459	3119	18
7.5-13.5	<u>Sand</u> with minor silt and gravel, brown, saturated, heaving	8B		8.0-9.5	510-06	0	24	1718	111	1003	13
		8C		10.0-11.5	510-07	0	28	333	160	258	5
		8C		12.0-13.5	510-08	0	30	147	30	23	4
	TD = 13.5'										
	<u>Silt</u> with clay and sand, gray (Sample from 15 ft. northwest of original boring location)	4		4.0-5.5	510-04D	1878	16	17400	2564	17110	65

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-511

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.1-3.2	<u>Sand</u> , medium to coarse, dark orange, brown, minor sand and gravel slag, charcoal, and wood	4		0-0.1	511-01	246 <u>245</u>	19 <u>10</u>	4180 <u>3590</u>	476 <u>324</u>	3507 <u>5810</u>	23 <u>26</u>
		4		0.1-1.5	511-02	209	24	2202	462	2725	21
		4		2.0-3.5	511-03	1112 <u>683</u>	39 <u>16</u>	14780 <u>1340</u>	3999 <u>1320</u>	82200 <u>30700</u>	207 <u>90</u>
3.2-3.5	Tailings, sand, medium to fine										
3.5-4.0	<u>Sand</u> and gravel slag, black										
4.0-5.0	<u>Silt</u> with clay and fine sand lenses, gray, firm, soft	4		4.0-5.0	511-04A	1718 <u>2430</u>	4 <u><1</u>	22490 <u>13600</u>	2022 <u>2480</u>	30050 <u>31900</u>	96 <u>140</u>
5.0-8.0	Slag, sand and gravel, black, minor yellow and orange silt and fine brown sand	6C		5.0-5.5	511-04B	1442	11	6482	1404	6363	23
		6C		6.0-7.5	511-05	512	20	15960	1438	23050	106
8.0-10.0	<u>Silt</u> with sand, organic rich, firm, very moist	8A		8.0-9.5	511-06	87 <u>42</u>	20 <u>12</u>	6901 <u>299</u>	778 <u>94</u>	16820 <u>11600</u>	88 <u>12</u>
10.0 - 14.5	<u>Sand</u> , silty with interbedded sand, medium to coarse, firm, brown			10.0-11.5	NR						
		8C		12.0-13.5	511-07	94	20	1589	335	3336	24
		8C		14.0-14.5	511-08	52 <u>137</u>	23 <u>10</u>	1100 <u>21</u>	106 <u>10</u>	1575 <u>1480</u>	15 <u><1</u>
	TD = 14.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-512

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.1-8.0	Fill material with sand and gravel slag, altered granite, and silty sand tailings	6C		0.1-1.5	512-02	615	21	6050	965	5774	21
		6C		2.0-3.5	512-03	357	25	4154	851	5298	27
		6C		4.0-5.5	512-04	590	24	8710	997	6014	28
		6C		6.0-7.5	512-05	512	38	8723	1932	10940	37
8.0-15.3	Silt, dark gray to brown, with interbedded sand lenses, fine to coarse, red to dark brown, micaceous, organic rich to 9.2'	8A		8.0-9.5	512-06	545	54	7180	3073	11400	42
		8B		10.0-11.5	512-07	0	22	1954	217	5746	37
		8C		12.0-13.5	512-08	0	25	957	251	2493	13
		8C		14.0-15.3	512-09	0	17	232	136	373	5
	TD = 15.3'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-513

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY COCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.1-12.0	Fill, sand and gravel, brown, sand with slag and bricks, varicolored, brown, black, orange, and white	6C		0.1-1.5	513-02	301	38	6084	1538	17120	57
		6C		2.0-3.5	513-03	361 213	50 <1	8385 5040	2704 2470	25080 26500	88 18
				4.0-5.5	NR						
		6C		6.0-7.5	513-04	211	38	5877	1883	16810	68
		6C		8.0-9.5	513-05	2013	39	6910	3658	12820	40
		6C		10.0-11.5	513-06	742	43	6363	2619	25150	72
12.0 - 14.0	Sand, fine to very fine, brown, saturated	4		12.0-13.5	513-07	376 240	82 <1	3044 1210	5085 8750	23350 21300	75 20
14.0 - 20.0	Silt with minor clay and sand, gray, organic rich with roots at 14.5'	8A		14.0-15.5	513-08	26 39	1234 17	5725 204	0 706	1002 2020	8 5
		8B		16.0-17.5	513-09	64	27	416	175	1672	10
		8C		18.0-19.5	513-10	0	25	242	76	978	10
20.0 - 21.5	Sand, fine to very coarse, dark red to purple to yellow-brown, micaeous	8C		20.0-21.5	513-11	0 12	27 13	23 36	190 87	362 458	3 11
	TD = 21.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-514

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-8.5	<u>Sand</u> , brown										
8.5-23.0	<u>Sand</u> , medium to coarse, minor silt, dark brown, saturated	8C		8.5-10.0	514-01	0 10	22 3	585 30	114 198	1136 1530	18 11
	Very soft, easy drilling										
	1.5' Heave sand			20.0	NR						
23.0-25.5	<u>Bedrock</u> , decomposed granite, sand	8C		25.0-25.3	514-02	0	18	11	305	654	4
		8C		25.3-25.5	514-03	0	18	203	219	572	9
	TD = 25.5										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-515

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.1-14.0	<u>Sand</u> , fine to coarse, brown, with gravel slag clasts and yellow silt (tailings?) and some gray mud	4		0.1-1.5	515-01	65 <u>62</u>	24 <u>12</u>	904 <u>937</u>	139 <u>147</u>	1386 <u>1120</u>	13 <u>4</u>
		4		2.0-3.5	515-02	56	26	536	181	1131	17
		4		4.0-5.5	515-03	46	22	2949	389	8530	46
		4		6.0-7.5	515-04	363	23	3287	812	8121	32
		4		8.0-9.5	515-05	2402	21	7214	2893	10180	24
		4		10.0-11.5	515-06	2611	23	25930	3817	24380	52
		4		12.0-13.5	515-07	2787	4	42980	3270	42780	96
14.0 - 18.3	<u>Silt</u> , organic rich, black, firm, minor sand	8A		14.0-15.5	515-08	3019 <u>2910</u>	4 <u><1</u>	49610 <u>23600</u>	3504 <u>2990</u>	62950 <u>31800</u>	117 <u>105</u>
18.3 - 19.1	<u>Sand</u> , fine to coarse, dark brown to orange	8B		16.0-17.5	515-09	0 <u>32</u>	16 <u>11</u>	423 <u>136</u>	240 <u>50</u>	560 <u>253</u>	2 <u><1</u>
19.1 - 19.5	<u>Clay</u> with silt, green, plastic, firm to stiff	8B		18.0-19.1	515-10A	0	20	407	202	449	22
		8B		19.1-19.5	515-10B	0	11	382	70	351	7
	TD = 19.5'										
	Combined samples 515-06 and 07			10.0-13.6	515-10						

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-516

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.0	<u>Sand</u> , medium to very fine, light yellow brown, Tailings	1		0-0.1	516-01A	428 <u>552</u>	11 <u>2</u>	1185 <u>520</u>	360 <u>306</u>	758 <u>2210</u>	11 <u>11</u>
		2		0.1-1.5	516-01	614	11	981	506	756	14
		2		2.0-3.5	516-02	483	17	1044	579	1022	17
				Duplicate	516-02	414	16	1292	496	598	10
4.0-7.5	<u>Sand</u> , medium to fine, brown to gray brown, wet	2		4.0-6.0	516-03	360	18	1134	568	975	15
		4		6.0-7.3	516-04A	571 <u>881</u>	17 <u><1</u>	3760 <u>3830</u>	840 <u>515</u>	2393 <u>6010</u>	34 <u>18</u>
		4		7.3-7.5	516-04B	68	27	1767	552	7031	36
7.5-9.0	<u>Sand</u> , with silt and organic material, fine to coarse 2" red iron oxide lense at 8.5'	8A		7.5-8.5	516-05A	31 <u>35</u>	22 <u>11</u>	2264 <u>996</u>	228 <u>52</u>	4984 <u>2070</u>	27 <u>4</u>
		8A		8.5-9.0	516-05B	17	19	1906	55	0	24
		8B		9.0-9.5	516-06	12 <u>52</u>	18 <u>3</u>	958 <u>1140</u>	0 <u>58</u>	213 <u>307</u>	7 <u><1</u>
	TD = 9.0'										
	Tailings	2		2.5-4.0	516-07	674	17	1463	849	1494	18
	Tailings, sand, medium, very fine, yellow-brown	2		4.0-4.5	516-08A	552 <u>467</u>	19 <u>12</u>	2985 <u>3360</u>	959 <u>6640</u>	1461 <u>13700</u>	24 <u>14</u>
	Sandy silt with organics	4		4.5-5.5	516-08B	440	79	4970	4352	21040	57
	<u>Sand</u> , fine grains, with organics	4		5.5-7.0	516-09	67	24	2180	454	6085	28
	Bulk grab	2		1.0-3.0	516-10	403	14	743	399	663	11

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-517

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	<u>Sand</u> , medium to fine, yellow-brown, with silt lenses, dry to slightly moist	1		0-0.1	517-01	338 <u>249</u>	34 <u>1</u>	31 <u>219</u>	247 <u>250</u>	333 <u>1080</u>	6 <u>3</u>
2.0-2.5	<u>Sand</u> , with organics, medium to coarse	2		0.1-1.5	517-02	802	36	162	561	777	11
		2		2.0-2.5	517-03A	1048	42	473	554	504	11
2.5-12.0	<u>Sand</u> , fine to coarse, with silt and silty sand lenses, brown with orange iron oxide specs and staining	8A		2.5-3.5	517-03B	748 <u>788</u>	20 <u>6</u>	527 <u>355</u>	289 <u>345</u>	500 <u>257</u>	5 <u><1</u>
		8B		4.0-5.5	517-04	520	14	1217	153	329	4
		8C		6.0-7.5	517-05	460 <u>1420</u>	14 <u>8</u>	973 <u>978</u>	130 <u>32</u>	245 <u>290</u>	4 <u>1</u>
		8C		8.0-9.5	517-06	0	15	608	108	353	9
		8C		10.0-11.5	517-07	0	16	665	348	896	9
12.0 - 13.5	<u>Sand</u> , coarse to very coarse, micaceous, quartz and feldspar	8C		12.0-13.5	517-08	0 <u>6</u>	30 <u>3</u>	60 <u>90</u>	21 <u>11</u>	0 <u>86</u>	7 <u><1</u>
	TD = 13.5'										
	<u>Sand</u> , medium to fine, minor silt lenses, yellow- brown, slightly moist	2		1.0-2.5	517-09	397 <u>553</u>	35 <u>1</u>	78 <u>123</u>	241 <u>269</u>	290 <u>808</u>	11 <u>2</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-518

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-1.5	<u>Sand</u> , medium to fine, yellow-brown, dry	1		0-0.1	518-01	584 <u>216</u>	20 <u>2</u>	1140 <u>644</u>	392 <u>359</u>	567 <u>1590</u>	7.4 <u>6</u>
	<u>Sand</u> , fine to coarse, yellow- brown to orange, dry	2		0.1-1.0	518-02	844 <u>521</u>	14 <u>1</u>	717 <u>177</u>	643 <u>489</u>	890 <u>1650</u>	13 <u>5</u>
1.5-2.5	<u>Peat</u> , dark brown to black with some silt and clay	8A		1.0-1.5	518-03	1098 <u>909</u>	27 <u>24</u>	29010 <u>25600</u>	1876 <u>1230</u>	2450 <u>3220</u>	2 <u>9</u>
	<u>Silt</u> , organic, rich, gray to dark brown to black, minor light gray zones, very soft, sandy at 3' with water	8A		1.5-2.5	518-04	164 <u>114</u>	20 <u>14</u>	14490 <u>3650</u>	1228 <u>40</u>	37230 <u>22700</u>	127 <u>113</u>
	TD = 2.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-519

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	<u>Sand</u> , medium to fine, brown to orange-brown, silt lenses near 2.0'	4		0-0.1	519-01	459	20	1236	588	1589	12
2.0-4.0	Peat, black, grading to gray silt, soft, very moist	4		0.1-1.5	519-02	431	30	362	424	825	7
		8A		2.0-3.5	519-03	509	57	4399	2901	10460	40
		8B		4.0-5.5	519-04	0	27	668	348	3079	21
4.0-10.0	<u>Sand</u> , medium to coarse, yellow-red to brown to orange to gray with interbedded silt layers, micaceous	8C		6.0-7.6	519-05	42	20	1462	0	445	2
10.0-13.5	<u>Sand</u> , medium to very coarse, orange to brown, saturated, weathered granite at bottom	8C		8.0-9.5	519-06	0	17	623	356	724	9
		8C		10.0-11.5	519-07	0	10	609	286	769	6
		8C		12.0-13.5	519-08	0	7	249	167	520	3
	TD = 13.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-520

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.0	Sand, medium to coarse, brown, with minor granite gravel clasts, iron oxide stained	4		0-0.1	520-01	135	18	60	169	357	8
		4		0.1-1.5	520-02	13	18	79	40	222	4
		4		2.0-3.5	520-03	43 <u>12</u>	14 <u>9</u>	508 <u>17</u>	0 <u>9</u>	106 <u>70</u>	4 <u><1</u>
4.0-10.0	Silt with sand lenses, dark brown to light brown, with yellow and orange mottling organics at 4' and 8.1'	4		4.0-5.5	520-04	24	25	1059	325	827	2
		4		6.0-7.5	520-05	30	23	92	52	41	1
		4		8.0-9.5	520-06	1 <u>21</u>	25 <u>15</u>	625 <u>188</u>	74 <u>36</u>	2428 <u>1660</u>	11 <u><1</u>
10.0 - 13.5	Sand with gravel, medium to coarse, red-brown, loose, heaving at bottom	8B		10.0-11.5	520-07	110	4	582	45	308	2
		8C		12.0-13.5	520-08	0 <u>15</u>	18 <u>13</u>	366 <u>202</u>	28 <u>33</u>	180 <u>162</u>	5 <u><1</u>
	TD = 13.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

ADDITIONAL COLORADO TAILINGS SURFACE SAMPLES

DEPTH (INCHES)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-0.1	<u>Sand</u> , medium to fine, yellow-brown to orange	1		0-0.1	521-01	309 <u>265</u>	16 <u><1</u>	1073 <u>484</u>	259 <u>246</u>	891 <u>2290</u>	9 <u>8</u>
0-0.1	<u>Sand</u> with brown silt, medium to fine, yellow- brown to orange	1		0-0.1	522-01	904 <u>579</u>	15 <u>3</u>	1938 <u>1570</u>	988 <u>676</u>	1672 <u>1730</u>	7 <u>3</u>
0-0.1	<u>Sand</u> with silt, medium to fine, minor salts, blue and white	1		0-0.1	523-01	1703 <u>1320</u>	26 <u>6</u>	5437 <u>2990</u>	2552 <u>2240</u>	1330 <u>10200</u>	45 <u>29</u>
0-0.1	<u>Sand</u> , medium to fine, minor silt, yellow-brown	1		0-0.1	524-01	1166 <u>771</u>	5 <u><2</u>	694 <u>417</u>	751 <u>394</u>	961 <u>1580</u>	4 <u>4</u>
0-0.1	<u>Sand</u> with silt, yellow-brown to orange, medium to fine	1		0-0.1	525-01	866 <u>627</u>	41 <u>2</u>	351 <u>443</u>	711 <u>712</u>	944 <u>842</u>	6 <u>1</u>
0-0.1	<u>Sand</u> , medium to fine, yellow-brown, minor silt crust with blue and white salts	1		0-0.1	526-01	1163 <u>870</u>	11 <u>2</u>	2334 <u>1910</u>	1116 <u>708</u>	2773 <u>2820</u>	18 <u>7</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-601

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.0	Sand with silt, medium to coarse, brown to red-brown, slightly moist.	6A		0-0.1	601-01	0	23	683	215	431	9
4.0-16.5	Sand, fine to coarse, yellow-brown to brown to orange, minor gravel and silt lenses.	6A		0.1-1.5	601-02	0 0	23 11	471 349	139 96	271 223	1 <1
		8B		4.0-5.5	601-03	7	23	283	78	80	0
		8C		6.0-7.5	601-04	0	16	414	228	559	9
		8C		10.0-11.5	601-05	0	24	181	46	7	7
	Green copper stained area at 16'.	8C		15.0-16.5	601-06	0 7	21 9	325 84	95 34	236 145	3 <1
	TD = 16.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-602

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-12.0	<u>Sand</u> with silt and gravel, fine to very coarse, dark brown with red and orange staining, altered granite clasts	6A		0-0.1	602-01	8	28	1789	185	1048	8
		6E		0.1-1.5	602-02	0	14	526	157	456	2
		6E		4.0-5.5	602-03	0	22	527	462	750	7
12.0-14.0	Garbage - newspaper, glass, cardboard	6E		8.0-9.5	602-04	106	24	2890	254	962	8
		6D		12.0-13.5	602-05	384	29	11970	548	3176	6
		6C		14.0-15.5	602-06	999	17	4001	686	3402	13
14.0-20.5	<u>Sand</u> with minor silt and gravel, predominatly black slag material	6C		16.0-16.3	602-07	509	45	12530	992	11470	15
		6C		18.0-19.5	602-08	288 333	45 8	12600 4890	558 634	17630 13000	27 <4
		8B		20.5-22.0	602-09	0	23	1436	152	1819	15
20.5-28.0	<u>Sand</u> , fine to coarse, black to orange to white, with silty sand layers, micaceous, saturated at 27 feet	8C		25.0-26.5	602-10	0	13	490	147	391	3
		8C		26.5-28.0	602-11	0	16	573	235	544	9
	TD = 28.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-603

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	Topsoll, silt with organic material and roots	6A		0-0.1	603-01	0	18	515	179	433	1
		6A		0.1-1.5	603-02	0 47	22 9	379 381	160 129	438 473	5 <1
2.0-6.5	Gravel and cobbles, granite fill material	2		5.0-6.5	603-03	18	31	208	170	119	5
6.5-7.5	Sand, fine to very fine with minor silt, yellow to white to orange, tailings	2		7.0-7.5	603-04A	114 183	17 3	447 209	187 133	496 340	0 <1
7.5-9.0	Silt with gravel slag aray to dark brown to black	6C		7.5-8.0	603-04B	380	27	597	619	904	5
9.0-9.5	Clay, gray, with gravel and silt	8A		9.0-9.5	603-05A	1292 2870	33 10	-- 21900	2395 499	4198 4370	11 38
9.5-15.0	Silt, organic rich, black, slightly moist	8A		9.5-10.5	603-05B	470	19	5148	600	2615	15
		8A		11.0-12.5	603-06	0 14	24 10	1408 979	142 64	1341 1030	13 1
		8A		13.0-14.5	603-07	0	25	2334	30	1544	10
15.0-16.5	Sand with silt, medium to very coarse, gray with orange Iron oxide motting	8B		15.0-16.5	603.08	0 24	17 18	384 118	222 47	649 334	0 <1
	TD = 16.5'										

Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-604

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-10.0	Sand, fine to coarse, brown, dry loose, minor bricks and yellow sand, fill	6A		0-0.1	604-01	0	12	811	146	387	10
		6A		0.1-1.5	604-02	0	15	515	191	394	6
		6A		2.0-3.5	604-03	0	16	569	112	230	4
		6A		6.0-7.5	604-04	0	22	299	226	320	4
10.0-12.0	Silt, organic rich with clay and minor sand	8A		10.0-11.5	604-05	0	16	679	114	288	4
12.0-26.5	Sand, medium to coarse, brown, with occasional silty sand lenses. Some organic iron oxide mottling	8C		15.0-16.5	604-06	0	9	579	115	372	2
		8C		20.0-21.5	604-07	0	17	462	224	416	8
		8C		25.0-26.5	604-08	0	27	129	52	7	6
	Heaving Sand	8C									
	TD = 26.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-605

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-9.0	Sand with silt, fine to coarse, brown to red-brown, slightly moist, minor gravel	6A		0-0.1	605-01	0	14	646	159	330	7
		6A		0.1-1.5	605-02	0	15	815	169	461	9
	As above with more granitic and slag gravel	6C		4.0-5.5	605-03	318	25	1401	440	1240	6
	Auger, refusal, gravel and cobbles			8.0-9.0	NR						
	TD = 9.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-606

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-2.0	<u>Sand</u> with silt, fine to coarse	6A		0-0.1	606-01	0	13	728	128	684	5
		6A		0.1-1.5	606-02	0	11	648	289	667	5
2.0-25.0	<u>Sand</u> with gravel and cobbles, medium to coarse, predominatly slag with mixed orange and yellow, and (likely tails), orange sandy silty clay, and silt.(fill material)	6C		5.0-3.5	606-03	528	53	7348	1722	19340	31
		6C		10.0-11.5	606-05	316	40	4963	677	5322	8
				15.0-16.5	606-06	NR	NR	NR	NR	NR	NR
		6C		20.0-21.5	606-07	1527	35	2770	1868	3198	4
	Auger refusal	6C		23.5-25.0	606-08	697	41	7218	1101	6719	17
	TD = 25.0'										
	Combined samples 606-03 and 04			2.0 - 5.5	606-09	<u>851</u>	<u><3</u>	<u>3420</u>	<u>1930</u>	<u>11900</u>	<u>17</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-607

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-4.0	<u>Sand</u> with silt, fine to medium, brown, dry, loose, minor slag clasts	6A		0-0.1	607-01	0	25	356	50	51	7
4.0-19.0	<u>Gravel</u> with sand, orange silt, cobbles, gravel is granite, very difficult drilling. Fill Waste Rock	6A		0.1-1.5	607-02	0	21	225	62	87	10
		6A		2.0-3.5	607-03	31	27	716	197	1658	9
		6E		6.0-7.5	607-04	0	17	488	203	345	1
		6E		12.0-13.5	607-05	0	22	424	130	100	10
19.0-23.0	<u>Silt</u> , organic rich, minor clay and very fine sand, dark brown to black	8A		19.0-20.5	607-06	35 <u>104</u>	27 <u>14</u>	3131 <u>4920</u>	189 <u>105</u>	1956 <u>1970</u>	13 <u>14</u>
		8A		21.0-22.5	607-07	19	26	1608	153	1930	14
23.0-24.5	<u>Sand</u> with silt, fine to very fine, cohesive, moist, gray, brown with orange iron oxide molting	8B		23.0-24.5	607-08	0	26	704	51	935	5
	TD = 24.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-609

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-12.0	<u>Sand</u> with some silt, and gravel to 1", fine to coarse, brown, dry to slightly moist, loose.	7		0-0.1	609-01	0	20	348	120	385	11
		8B		0.1-1.5	609-02	0	18	296	166	408	2
		8C		2.0-3.5	609-03	0	25	140	0	42	1
		8C		4.0-5.5	609-04	0	30	98	18	0	3
		8C		8.0-9.5	609-05	0	30	124	4	0	2
12.0-15.0	<u>Sand</u> , fine to very coarse, minor silt and gravel to 3/4", loose, slightly moist, orange	8C		12.0-13.5	609-06	6	16	356	16	140	0
15.0-20.0	<u>Sand</u> with silt, medium to very fine, brown with orange iron oxide mottling	8C		15.0-16.5	609-07	0	19	258	153	298	8
20.0-26.5	<u>Sand</u> , medium to coarse, orange, brown, saturated	8C		20.0-21.5	609-08	10	10	19	328	24	6
		8C		25.0-26.5	609-09	0	25	552	142	679	1
	TD = 26.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-610

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0-1.0	Sand, medium to fine, brown, dry to slightly moist	6A		0-0.1	610-01	39	28	147	112	102	0
	Refusal at 1' - black slag	6A		0.1-1.0	610-02	73	24	256	70	248	5
	TD = 1.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-611

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-20.0	<u>Sand</u> , gravel, with some silt and cobbles, brown to white with yellow-orange, and red staining, gravel is predominantly granite, Fill/Waste rock			0-0.1	811-01						
		6E		0.1-1.3	611-02A	0	22	329	80	294	4
		6E		1.3-1.5	611-02B	0	22	357	67	94	0
		6E		2.0-3.5	611-03	0 <u>113</u>	13 <u>7</u>	579 <u>278</u>	116 <u>126</u>	393 <u>40</u>	3 <u><1</u>
		6E		4.0-5.5	611-04	0	23	366	201	281	7
		6E		6.0-7.5	611-05	0	22	339	220	315	11
				8.0-9.5	811-06						
		6E		10.0-11.5	611-07	0	23	381	98	209	7
		6E		12.0-13.5	611-08	0 <u>20</u>	20 <u>5</u>	586 <u>409</u>	121 <u>185</u>	284 <u>19</u>	8 <u><1</u>
		6E		14.0-15.5	611-09	0	24	533	74	113	9
		6E		16.0-17.5	611-10	0	20	524	121	230	2
20.0-25.5	<u>Sand</u> , medium to fine, dark orange to yellow, slightly moist. Tailings	6E		18.0-19.5	611-11	0	26	356	102	107	7
		2		20.0-21.5	611-12	366	40	486	1095	496	0
		2		22.0-23.5	611-13	307	38	502	945	759	6
		2		24.0-25.3	611-14A	299	28	481	555	702	2
25.5-26.3	Fine sand with silt, brown with orange mottling	2		25.3-25.5	611-14B	688	15	837	346	1907	11
		8A		26.0-26.3	611-15A	20	27	21840	412	3862	9
26.3-28.0	<u>Silt</u> with organic material, firm, moist, black	8A		26.3-27.5	611-15B	0 <u>36</u>	25 <u>17</u>	17100 <u>11100</u>	242 <u>150</u>	352 <u>1390</u>	0 <u>13</u>
28.0-31.5	<u>Sand</u> , medium, loose, dark brown, slightly moist, coarse sand, sandy silt, and purple fine sand stringers, wet at bottom	8B		28.0-29.5	611-16	0	31	486	119	131	7
		8C		30.0-31.5	611-17	19 <u>32</u>	22 <u>18</u>	1238 <u>1000</u>	3 <u>67</u>	531 <u>440</u>	6 <u>2</u>
	TD = 31.5'										
	Combined Samples 611-13, 14A, and GS-41S	2		22.0-25.3	611-18	<u>261</u>	<u><2</u>	<u>196</u>	<u>623</u>	<u>974</u>	<u>2</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-612

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
2.0-6.0	Fill/Waste Rock										
	<u>Sand</u> with gravel, medium to coarse, minor silt, dark brown, gravel is slag as is some sand	6A		2.0-3.5	612-01	0	21	147	18	113	0
		6C		4.0-5.5	612-02	76	34	570	1047	2867	15
6.0-20.5	<u>Gravel</u> , cobbles, and boulders, granite, red to orange silt coatings, minor sand and silt	6E		6.0-7.5	612-03	0	21	257	163	253	3
		6E		10.0-11.5	612-04	0 <u>23</u>	21 <u>4</u>	337 <u>112</u>	100 <u>198</u>	285 <u>90</u>	0 <u><1</u>
		6E		15.0-16.5	612-05	0	19	446	132	335	0
		6E		19.0-19.4	612-06	0	24	432	67	274	0
20.5-23.8	<u>Sand</u> with minor silt, slightly moist, yellow with orange staining	2		20.5-22.0	612-07	370	32	256	1201	1021	8
		2		22.0-23.5	612-08	745	24	0	1103	1185	6
23.8-24.2	<u>Silt</u> with clay, oragnic rich, firm, moist										
24.2-27.5	<u>Clay</u> with silt and minor sand, gray, organic rich at 26.2', black	8A		24.0-25.5	612-09	680 <u>1500</u>	6 <u>15</u>	1096 <u>953</u>	420 <u>104</u>	1411 <u>740</u>	9 <u><1</u>
		8A		26.0-27.5	612-10	294	19	1255	238	1526	9
27.5-29.1	<u>Sand</u> , medium to fine, orange with gray, micaceous	8B		28.0-29.1	612-11	20 <u>254</u>	0 <u>12</u>	764 <u>537</u>	196 <u>68</u>	1304 <u>369</u>	5 <u><1</u>
	TD = 29.1'										
	Combined sample, 612-07, 08	2		20.5-23.5	612-12	515	41	42	912	1231	9
	Combined sample, 612-09, 10	8A		24.0-27.5	612-13	<u>594</u>	<u>21</u>	<u>1050</u>	<u>95</u>	<u>1120</u>	<u><1</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-613

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-21.0	<u>Sand</u> and gravel with cobbles, orange silt and silty sand coatings	6A		0.0-0.1	613-01	0	29	147	110	262	4
		6E		0.1-1.5	613-02	64	26	1101	365	2440	14
		6E		5.0-5.2	613-03	57	28	2210	547	5473	13
		6E		10.0-11.5	613-04	0	18	359	280	680	12
		6E		15.0-16.5	613-05	0	14	526	141	527	4
21.0-22.3	<u>Sand</u> , fine to coarse, brown to orange brown, loose	4		21.0-22.5	613-06	594 <u>784</u>	5 <u>5</u>	808 <u>252</u>	198 <u>222</u>	748 <u>465</u>	5 <u><1</u>
22.3-22.4	<u>Silt</u> , gray to orange, minor yellow staining										
22.4-25.0	<u>Silt</u> , organic rich, black to dark gray minor fine sand, moist to saturated	8A		23.0-24.5	613-07	4	25	1197	0	744	7
25.0-26.5	<u>Sand</u> with silt, medium to fine, brown with orange mottling	8B		25.0-26.5	613-08	0 <u>70</u>	2 <u>19</u>	816 <u>575</u>	224 <u>73</u>	654 <u>471</u>	10 <u><1</u>
	TD = 26.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-614

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-2.5	Sand with minor silt and organics, fine to coarse, dark brown, slightly moist	6A		0.0-0.1	614-01	0	26	440	87	279	0
		6A		0.1-1.5	614-02	0 <u><2</u>	25 <u>5</u>	172 <u>125</u>	77 <u>99</u>	122 <u>122</u>	2 <u><1</u>
2.5-5.2	Sand, fine to very fine, thinly laminated, light brown to dark brown and yellow mottling, copper carbonate sand	4		4.0-5.2	614-03A	2040 <u>2350</u>	11 <u>9</u>	4168 <u>4040</u>	1765 <u>1160</u>	1470 <u>1570</u>	8 <u>10</u>
5.2-7.5	Clay and silt with clay, dark brown to light brown with orange iron oxide lenses and dark red-brown layers, soft	4		5.2-5.5	614-03B	1171	17	3540	1587	1268	3
		4		6.0-7.1	614-04A	1957	16	29380	1949	642	0
		4		7.1-7.5	614-04B	3042 <u>5040</u>	21 <u>12</u>	40340 <u>34000</u>	3483 <u>2380</u>	4623 <u>3460</u>	2 <u>18</u>
7.5-9.5	Sand, silty with organics, crumbly, dark brown with roots	8A		8.0-9.5	614-05	0 <u>12</u>	23 <u>6</u>	3695 <u>3250</u>	0 <u>35</u>	483 <u>719</u>	8 <u>6</u>
9.5-20.0	Sand, medium to fine, light yellow-brown, loose, slightly moist, with silty sand and sandy silt lenses to 0.5' thick	8B		10.0-11.5	614-06	0 <u>19</u>	26 <u>6</u>	1146 <u>1220</u>	181 <u>25</u>	413 <u>449</u>	6 <u>2</u>
		8C		12.0-13.5	614-07	0	24	408	121	266	4
		8C		15.0-16.5	614-08	0 <u>15</u>	17 <u>5</u>	514 <u>147</u>	112 <u>27</u>	353 <u>102</u>	11 <u><1</u>
		8C		18.5-20.0	614-09	0 <u>18</u>	27 <u>5</u>	169 <u>79</u>	43 <u>38</u>	9 <u>103</u>	3 <u><1</u>
	TD = 20.0'										
	Combined samples 614-07, 08, and 09	8C		12.0-20.0	614-10	<u>22</u>	<u>17</u>	<u>281</u>	<u>74</u>	<u>282</u>	<u><1</u>

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-615

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-5.3	Sand with silt, medium to fine, some organic material, brown with orange and white silty sand lenses	6A		0.0-0.01	615-01	0	23	266	218	446	6
		6A		0.1-1.5	615-02	162	25	1246	276	957	6
		6A		2.0-3.5	615-03	0	24	152	76	273	5
5.3-6.5	Silt with clay, yellow to light gray, moist, firm, tailings	4		4.0-5.5	615-04	1318	24	778	1417	833	2
		2		6.0-6.5	615-05A	2771	12	1563	2732	1050	0
		4		6.5-7.2	815-05B	4380 1910	37 16	6856 4470	6070 3010	4679 2740	0 4
6.5-7.2	Clay with silt, dark red, firm, moist	4		7.2-7.5	615-05C	2826	51	16430	4989	2624	0
7.2-8.0	Clay, gray, firm	4		8.0-9.5	615-06	26	25	4034	118	1454	16
8.0-14.0	Silt with sand, medium to fine, dark brown to yellow brown with some orange mottling	8B		10.0-11.5	615-07	0	28	45	38	609	4
		8C		12.0-13.5	615-08	0	26	858	783	677	11
		8C		14.0-15.5	615-09	0	27	587	83	756	4
14.0-17.5	Sand with silt, fine to very fine, brown with orange mottling	8C		16.0-17.5	615-10	0	11	553	248	655	7
	TD = 17.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-616

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-2.0	<u>Sand</u> with some silt, dry, loose, minor organics	6A		0.0-0.1	616-01	0	19	293	134	203	5
		6A		0.1-1.5	616-02	0	20	370	263	535	7
2.0-18.5	<u>Gravel</u> and cobbles, granitic, orange and red sandy silt coating clasts	6E		2.0-3.5	616-03	64	15	410	69	189	1
		6E		4.0-5.5	616-04	31	8.8	578	50	357	2
		6E		6.0-7.5	616-05	0	7	599	57	373	4
		6E		8.0-9.5	616-06	13	16	419	0	87	10
		6E		10.0-11.5	616-07	57	13	479	65	311	2
		6E		15.0-16.5	616-08	406	24	365	69	150	5
18.5-24.3	<u>Sand</u> with minor silt, yellow-brown to gray to orange and red, slightly moist, tailings	2		18.5-20.0	616-09	405	17	987	435	649	8
		2		20.0-21.5	616-10	662	13	1909	481	679	7
		2		21.5-23.0	616-11	449	17	806	536	635	3
		2		23.0-24.3	616-12A	557	17	931	931	554	7
24.3-25.8	<u>Clay</u> with silt, gray, soft to firm	4		24.3-24.5	616-12B	177	27	3061	355	2525	12
		8A		24.5-26.0	616-13	90	28	1582	400	3795	21
25.8-26.7	<u>Silt</u> , organic rich with debris, black	8A		26.0-27.0	616-14	0	17	359	344	652	6
26.7-27.0	<u>Sand</u> with silt, fine to very fine, dark brown	8B									
	TD = 27.0'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-617

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-10.0	<u>Sand</u> , fine to course, silty sand lenses 0.1' to 0.4' thick, brown to red brown, micaceous, loose, minor gravel	6A		0.0-0.1	617-01	0	30	154	93	0	6
		6A		0.1-1.5	617-02	137	28	715	177	1084	5
		6A		2.0-3.5	617-03	0	17	526	337	655	5
		6A		4.0-5.5	617-04	0	20	333	123	217	8
		6A		6.0-7.5	617-05	0	18	179	91	2	0
10.0-15.5	<u>Sand</u> , medium to very course, brown to gray, loose, saturated, minor iron oxide staining 12.8' to 15.5'	8B		10.0-11.5	617-06	0	24	220	19	0	7
		8C		12.0-13.0	617-07	0	19	339	24	0	0
		8C		14.0-15.5	617-08	0	19	269	0	0	4
	TD = 15.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-618

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY COCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-1.2	Sand with silt, dark brown	6A		0.0-0.1	618-01	18	23	309	306	373	7
1.2-6.0	Sand, fine to medium, minor silt, dry to slightly moist, yellow to orange to light gray, tailings	6A		0.1-1.5	618-02	157	23	610	284	505	0
		2		2.0-3.5	618-03	207	30	268	274	307	10
		2		4.0-5.5	618-04	151	35	35	144	78	3
6.0-13.4	Sand, fine to coarse, brown with orange mottling, few fine and very fine sand and silt lenses	4		6.0-7.5	618-05	120	24	373	363	396	1
13.4-15.7		4		8.0-9.5	618-06	197	21	435	368	628	7
		4		10.0-11.5	618-07	133	31	556	477	2201	9
		4		12.0-13.5	618-08	689	20	1271	514	2823	10
15.7-18.4	Silt, organic rich with sand and peat, black, very moist	8A		14.0-15.5	618-09	0	27	22140	290	781	0
15.7-18.4	Sand, medium to very coarse with gravel to 2.5", brown to orange-brown, saturated	8B		16.0-17.5	618-10	94	21	442	240	301	4
		8C		18.0-18.4	618-11	0	4	728	124	482	4
	TD = 18.4'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-619

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-3.0	<u>Sand</u> , fine to medium, brown, loose, slightly moist, minor silt	6A		0.0-0.1	619-01	0 <u>8</u>	17 <u>7</u>	224 <u>50</u>	65 <u>23</u>	98 <u>212</u>	3 <u><1</u>
3.0-8.0	<u>Sand</u> with some silt, yellow with orange mottling, slightly moist, loose, tailings	6A		0.1-1.5	619-02	0	19	237	16	262	2
		6A		2.0-3.0	619-03A	0	21	471	288	389	3
		2		3.0-3.5	619-03B	364	30	611	432	522	3
		2		4.0-5.5	619-04	256	35	270	430	471	8
8.0-10.0	<u>Silt</u> with organics, minor fine sand, dark brown to black, soft	2		6.0-7.5	619-05	392	36	216	537	660	10
		8A		8.0-9.5	619-06	4 <u>23</u>	30 <u>16</u>	3085 <u>3110</u>	74 <u>64</u>	1499 <u>1210</u>	6 <u><1</u>
10.0-12.0	<u>Sand</u> with silt, organic rich, fine to medium, soft, cohesive, dark brown	8B		10.0-11.5	619-07	8	28	1282	57	973	12
12.0-13.5	<u>Sand</u> with silt, interbedded	8C		12.0-13.5	619-08	27 <u>26</u>	28 <u>13</u>	734 <u>393</u>	0 <u>106</u>	742 <u>421</u>	5 <u><1</u>
	TD = 13.5'										
	Combined sample, 619-04, 09, 10	2		2.5-7.0	619-11	188 <u>40</u>	38 <u>50</u>	329 <u>88</u>	400 <u>90</u>	457 <u>66</u>	6 <u>44</u>
	Sample from GS-42S	2		3.0-7.5	619-42S	600 <u>363</u>	33 <u><2</u>	440 <u>429</u>	1500 <u>821</u>	4000 <u>1150</u>	10 <u>2</u>
	Shelby Tube sample	2		2.5-4.5	619-09	See	619	-11			
	Shelby Tube sample	2		5.0-7.0	619-10	See	619	-11			

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-620

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-6.0	<u>Sand</u> with minor silt, fine to medium, brown to light brown, micaceous, slag at 5'	6A		0.0-0.1	620-01	74	27	879	322	1053	7
		6A		0.1-1.5	620-02	6	18	426	278	623	5
		6C		4.0-5.5	620-04	324	18	890	348	523	7
6.0-8.0	<u>Silt</u> with sand, gray, stiff, with medium to coarse sand lenses	4		6.0-7.5	620-05	0	27	581	138	866	5
8.0-12.0	<u>Sand</u> with silt and gravel, medium to very coarse, orange to red to brown, mixed yellow silty sand, Intermixed tailings/alluvium	4		8.0-9.5	620-06	0	35	727	183	652	2
		4		10.0-11.5	620-07	0	16	330	28	170	4
12.0-14.5	<u>Sand</u> , medium with fine and very coarse lenses, minor gravel and organic lenses, brown to black	8B		14.0-15.0	620-09	0	21	675	392	546	2
14.5-14.8	<u>Clay</u> with silt, gray, firm										
14.8-16.4	<u>Sand</u> , very fine to coarse, gray to orange, micaceous, wet	8C		16.0-16.4	620-10A	0	7	774	197	541	7
		8C		16.4-17.0	620-10B	0	27	1044	67	1514	6
16.4-17.0	<u>Clay</u> , gray with Iron oxide staining										
17.0-21.5	<u>Sand</u> , very fine to coarse, gray to brown, with Interbedded silty sand lenses	8C		17.0-17.5	620-10C	0	24	248	111	148	2
		8C		18.0-19.5	620-11	0	12	406	327	669	11
		8C		20.0-21.5	620-12	0	16	268	285	575	12
	TD = 21.5'										

⁽¹⁾ Lithologic units described in Section 4.3

**SOIL BORING LITHOLOGIC LOGS, LABORATORY CONCENTRATIONS, AND
XRF PREDICTED CONCENTRATIONS
SILVER BOW CREEK - AREA I OPERABLE UNIT, PHASE II RI**

BORING NUMBER: A1-SD-622

DEPTH (FEET)	MATERIAL			SAMPLE		XRF PREDICTED CONCENTRATIONS (mg/kg)					
						LABORATORY CONCENTRATIONS (mg/kg)					
	DESCRIPTION	UNIT ¹	LOG	INTERVAL (FEET)	NUMBER	AS	CR	CU	PB	ZN	CD
0.0-4.0	Sand with minor silt, medium to coarse, brown to yellow to black, slag at 2.6'	6A		0.0-0.1	622-01	194 <u>136</u>	33 <u>14</u>	957 <u>754</u>	641 <u>649</u>	1752 <u>1390</u>	5 <u>3</u>
		6A		0.1-1.5	622-02	161	27	1647	516	1814	7
		6C		2.0-3.5	622-03	208 <u>228</u>	30 <u>11</u>	1885 <u>842</u>	581 <u>418</u>	2027 <u>2170</u>	11 <u>4</u>
4.0-6.0	Silt and fibrous material, orange, slightly moist	4		4.0-5.5	622-04	197	69	1003	1919	1506	0
6.0-8.0	Tailings, sand, medium orange to yellow, slightly moist, loose	4		6.0-6.8	622-05A	164	34	1901	818	2850	12
		2		6.8-7.5	622-05B	310	25	250	693	1073	5
8.0-12.0	Sand with silt, medium to coarse, brown, dark brown, gray, with sandy silt lenses	8B		8.0-9.5	622-06	188	30	802	322	1245	14
		8C		10.0-11.5	622-07	0 <u>21</u>	29 <u>13</u>	1043 <u>792</u>	180 <u>55</u>	1218 <u>870</u>	13 <u><1</u>
12.0-15.4	Sand, medium to coarse, brown	8C		12.0-13.5	622-08	0	15	494	200	593	4
		8C		14.0-15.4	622-09A	0 <u>17</u>	26 <u>14</u>	401 <u>390</u>	336 <u>44</u>	498 <u>636</u>	4 <u>1</u>
15.4-15.5	Clay with silt, gray, stiff	8C		15.4-15.5	622-09B	0	30	1858	173	2683	15
16.0-16.7	Sand, medium to coarse, brown, minor gravel, wet	8C		16.0-16.7	622-10A	0	28	335	152	202	6
16.7-17.5	Clay with silt, gray, stiff	8C		16.7-17.5	622-10B	5 <u>12</u>	28 <u>28</u>	1245 <u>934</u>	139 <u>62</u>	1730 <u>1650</u>	14 <u><1</u>
	TD = 17.5'										

⁽¹⁾ Lithologic units described in Section 4.3

APPENDIX C-4

Grain Size Data Base

GRAIN SIZE ANALYSES SUMMARY

ASTM D422 With D421 PREPARATION GRAIN SIZE WITH HYDROMETER	ASTM C136 MODIFIED TOTAL METALS BY GRAIN SIZE	SUMMARY ASTM C136 WITH C117 PREPARATION	MATERIAL UNIT	AREA
100-01 + Dup	101-01		4	WCT
	114-01		1	CT
		116-01 + FIELD	2	MS
	117-02		3	MS
	124-01		4	LMSD
		125-01	4	LMSD
130-01			6A	LMSD
		131-01	4	LMSD
132-01			5	UMSD
	146-01	146-01	6E	UMSD
147-01			6A/6D	UMSD
150-01			3	MS
		171-01	6A	UMSD
173-01	173-01		4	LMSD
	174-01		7	LMSD
177-01 + LAB	177-01		4	LMSD
178-01			6A	CT
		180-01	6D	LMSD
		181-01	6D	LMSD
182-01			6D	LMSD
		183-01	6D	LMSD
184-01	184-01	184-01	2	MS
186-01	186-01	186-01	5	MS
		187-01	5	MS

GRAIN SIZE ANALYSES SUMMARY

ASTM D422 With D421 PREPARATION GRAIN SIZE WITH HYDROMETER	ASTM C136 MODIFIED TOTAL METALS BY GRAIN SIZE	SUMMARY ASTM C136 WITH C117 PREPARATION	MATERIAL UNIT	AREA
500-11	500-11		2	MS
505-01 + FIELD	505-01		1	MS
	505-01A		1	MS
	507-01		4	MS
507-11	507-011		2	MS
	508-02A		1	MS
	509-01A	509-01A	4	MS
509-09	509-09		1	MS
		510-01A	1	MS
	516-01A		1	CT
516-01			1	CT
	516-10		2	CT
517-01	517-01		1	CT
	517-09	517-09	2	CT
	518-01	518-01	1	CT
	518-04		8A	CT
		519-01	1	CT
		520-01	4	CT
	521-01		1	CT
		522-01	4	CT
		523-01	1	CT
524-01 + FIELD	524-01		1	CT
		525-01	1	CT
		526-01	1	CT
611-18 + LAB	611-18		2	UMSD
612-13	612-13		8A	UMSD
614-10	614-10		8C	UMSD
	619-42S		2	UMSD

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TECHNICAL REPORT



REPORT TO: CH2M HILL
Attn: Dave Bunte
P.O. Box 5959
Helena, MT 59604

DATE: January 12, 1990
JOB NUMBER: 186-3001.JJ3
SHEET: 1 OF 10
INVOICE NO.:

REPORT OF: Laboratory analysis of soils; Silver Bow Creek Area I, Phase II Remedial Investigation

Sample Identification

On June 6 through July 7, 1989, our personnel obtained soil samples from the locations indicated at the above referenced project. At your request, we performed 26 particle size analysis tests (hydrometer) in accordance with ASTM D422 and D421. Of this total, 5 analysis are quality control samples including laboratory and field duplicates.

The test results are summarized on the following page:

Reviewed by:

Jeremiah B. Bourse

Sample Date:
8-3-89 at 10:45
A1-SD-173-01
Sample Depth
0.0'-0.1'

Lab No. 5353

Sample Date:
8-3-89 at 14:15
A1-SD-177-01
Sample Depth
0.0'-0.1'

Lab No. 5354

Sample Date:
8-3-89 at 14:15
A1-SD-177-01
Sample Depth
0.0'-0.1'

Lab No. 5354^(b)

SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

3/8"			
No. 4	100		100
No. 8	100	100	100
No. 10	100	100	100
No. 16	99	99	99
No. 30	97	99	99
No. 40	96	98	98
No. 50	94	98	98
No. 100	88	95	95
No. 200	77	92	92

HYDROMETER ANALYSIS

0.050 mm	69	84	81
0.037 mm	66	82	79
0.0225 mm	51	73	70
0.019 mm	47	69	66
0.012 mm	39	58	55
0.009 mm	34	51	49
0.005 mm	26	39	38

^(b) Laboratory duplicate

Sample Date:
8-4-89 at 15:10
A1-SD-184-01
Sample Depth
0.0'-0.1'
Lab No. 5355

Sample Date:
8-4-89 at 16:00
A1-SD-186-01
Sample Depth
0.0'-0.1'
Lab No. 5356

Sample Date:
6-13-89 at 08:08
A1-SD-100-01
Sample Depth
0.0'-0.1'
Lab No. 5357

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

1"		100	
3/4"		96	
1/2"		95	
3/8"		90	100
No. 4	100	80	100
No. 8	100	67	99
No. 10	100	64	99
No. 16	99	56	98
No. 30	99	44	97
No. 40	99	39	96
No. 50	99	35	94
No. 100	98	27	80
No. 200	92	22	52

HYDROMETER ANALYSIS

0.050 mm	84	22	45
0.037 mm	77	21	37
0.0225 mm	69	19	29
0.019 mm	66	18	27
0.012 mm	52	15	24
0.009 mm	23	7.7	22
0.005 mm	13	4.8	15

	Sample Date: 6-13-89 at 08:18 A1-SD-100-01 Sample Depth 0.0'-0.1' <u>Lab No. 5357^(a)</u>	Sample Date: 6-16-89 at 10:42 A1-SD-130-01 Sample Depth 0.0'-0.1' <u>Lab No. 5358</u>	Sample Date: 6-21-89 at 11:00 A1-SD-142-01 Sample Depth 0.0'-0.15' <u>Lab No. 5359</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

PERCENT PASSING

1/2"			100
3/8"	100	100	99
No. 4	100	99	97
No. 8	99	88	90
No. 10	99	84	87
No. 16	98	69	76
No. 30	97	45	57
No. 40	96	35	47
No. 50	94	28	39
No. 100	80	14	26
No. 200	52	6.4	18

HYDROMETER ANALYSIS

0.050 mm	46	4.8	16
0.037 mm	38	4.5	14
0.0225 mm	31	4.1	10
0.019 mm	28	4.1	9
0.012 mm	24	3.6	7.8
0.009 mm	22	3.2	6.9
0.005 mm	15	2.4	6.0

^(a) Filed duplicate

Chen-Northern, Inc.
January 12, 1990

ASTM D422
Procedure
with D421
preparation

Page 5 of 10

	Sample Date: 6-22-89 at 09:20 A1-SD-147-01 Sample Depth 0.0'-0.1' <u>Lab No. 5360</u>	Sample Date: 6-22-89 at 14:05 A1-SD-150-01 Sample Depth 0.0'-0.1' <u>Lab No. 5361</u>	Sample Date 8-3-89 at 15:49 A1-SD-178-01 Sample Depth 0.0'-0.1' <u>Lab No. 5362</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

P E R C E N T P A S S I N G

1/2"	100		
3/8"	98		
No. 4	88		
No. 8	79		100
No. 10	76	100	100
No. 16	68	100	90
No. 30	54	100	67
No. 40	48	100	55
No. 50	43	100	45
No. 100	32	99	29
No. 200	26	97	22

HYDROMETER ANALYSIS

0.050 mm	22	95	19
0.037 mm	20	90	18
0.0225 mm	16	77	14
0.019 mm	15	74	13
0.012 mm	12	62	11
0.009 mm	11	54	9.2
0.005 mm	8.6	43	7.4

	Sample Date: 7-6-89 at 10:25 A1-SD-505-01 Sample Depth 0.0'-0.1' <u>Lab No. 3689</u>	Sample Date: 7-6-89 at 10:30 A1-SD-505-01 Sample Depth 0.0'-0.1' <u>Lab No. 3689^(a)</u>	Sample Date: 7-6-89 at 11:45 A1-SD-516-01A Sample Depth 0.0'-0.1' <u>Lab No. 3693</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

P E R C E N T P A S S I N G

3/8"	100	100	
No. 4	94	94	
No. 8	83	83	100
No. 10	80	80	100
No. 16	71	71	99
No. 30	58	59	89
No. 40	52	53	77
No. 50	47	48	65
No. 100	38	38	39
No. 200	30	30	23

HYDROMETER ANALYSIS

0.050 mm	26	27	20
0.037 mm	22	24	16
0.0225 mm	16	16	13
0.019 mm	13	13	12
0.012 mm	7.0	6.7	7.5
0.009 mm	6.6	6.7	7.0
0.005 mm	6.6	5.9	4.5

^(a) Field Duplicate

Sample Date:
7-6-89 at 14:00
A1-SD-517-01
Sample Depth
0.0'-0.1'

Lab No. 3694

Sample Date:
7-6-89 at 12:40
A1-SD-524-01
Sample Depth
0.0'-0.1'

Lab No. 3700

Sample Date
7-6-89 at 12:50
A1-SD-524-01
Sample Depth
0.0'-0.1'

Lab No. 3700^(a)

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

No. 4	100	100	
No. 8	98	100	100
No. 10	97	100	100
No. 16	93	99	99
No. 30	76	85	86
No. 40	60	67	69
No. 50	47	51	53
No. 100	24	26	26
No. 200	12	14	13

HYDROMETER ANALYSIS

0.050 mm	9.0	11	11
0.037 mm	6.1	8.8	9.4
0.0225 mm	4.7	7.9	8.4
0.019 mm	3.8	7.4	7.9
0.012 mm	3.3	7.0	7.4
0.009 mm	2.8	7.0	7.4
0.005 mm	1.9	5.6	6.4

^(a) Field duplicate

	Sample Date: 6-26-89 at 18:31 A1-SD-611-18 Sample Depth 20.0'-25.5'	Sample Date: 6-29-89 at 9:10 A1-SD-612-13 Sample Depth 24.0'-27.5'	Sample Date: 6-28-89 at 11:10 A1-SD-614-10 Sample Depth 12.0'-20.0'
<u>SIEVE ANALYSIS</u>	<u>Lab No. 5348^(b)</u>	<u>Lab No. 5349</u>	<u>Lab No. 5350</u>

Sieve Size

P E R C E N T P A S S I N G

3/8"		100	
No. 4	100	100	100
No. 8	99	100	99
No. 10	97	99	99
No. 16	84	97	91
No. 30	60	93	69
No. 40	44	91	57
No. 50	33	89	48
No. 100	18	87	36
No. 200	12	85	30

HYDROMETER ANALYSIS

0.050 mm	10	81	27
0.037 mm	8.9	80	25
0.0225 mm	7.5	76	22
0.019 mm	7.0	74	21
0.012 mm	6.5	68	19
0.009 mm	6.1	64	18
0.005 mm	5.1	54	16

^(b) Laboratory duplicate

	Sample Date: 8-4-89 at 10:51 A1-SD-182-01 Sample Depth 0.0'- 4.5' <u>Lab No. 5363</u>	Sample Date: 7-6-89 at 10:00 A1-SD-509-09 Sample Depth 0.8'-2.8' <u>Lab No. 3691</u>	Sample Date: 6-26-89 at 18:31 A1-SD-611-18 Sample Depth 20.0' - 25'5' <u>Lab No. 5348</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

PERCENT PASSING

3/4"	100	100	
1/2"	94	100	100
3/8"	91	100	99
No. 4	84	100	97
No. 8	72	99	86
No. 10	69	98	62
No. 16	62	98	46
No. 30	50	98	35
No. 40	43	97	18
No. 50	38	93	11
No. 100	29		
No. 200	23		

HYDROMETER ANALYSIS

0.050 mm	22	87	9.9
0.037 mm	20	76	9.0
0.0225 mm	18	58	8.0
0.019 mm	16	54	7.6
0.012 mm	13	42	6.6
0.009 mm	11	33	6.6
0.005 mm	8.1	23	5.7

Chen-Northern, Inc.
January 12, 1990

ASTM D422
Procedure
with D421
preparation

Page 10 of 10

Sample Date:
7-6-89 at 9:20
A1-SD-507-11
Sample Depth
2.0'-3.5'
Lab No. 3687

Sample Date:
7-6-89 at 8:20
A1-SD-500-11
Sample Depth
0.5'-2.5'
Lab No. 3688

SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

3/8"	100	100
No. 4	98	100
No. 8	97	100
No. 10	97	99
No. 16	94	98
No. 30	73	82
No. 40	58	67
No. 50	47	53
No. 100	26	25
No. 200	14	12

HYDROMETER ANALYSIS

0.050 mm	12	11
0.037 mm	10	9.2
0.0225 mm	8.6	6.8
0.019 mm	7.6	6.3
0.012 mm	7.2	5.3
0.009 mm	6.7	5.3
0.005 mm	4.8	4.4

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TECHNICAL REPORT



REPORT TO: CH2M HILL
Attn: Dave Bunte
P.O. Box 5959
Helena, MT 59604

DATE: February 5, 1990
JOB NUMBER: 186-3001.JJ3
SHEET: 1 OF 10
INVOICE NO.:

REPORT OF: Laboratory analysis of soils; Silver Bow Creek Area I, Phase II Remedial Investigation

Sample Identification

On June 6 through July 7, 1989, personnel obtained soil samples from the locations indicated at the above referenced project. At your request, we performed 30 particle size analysis tests in conformance with ASTM C136 and D2217. Test results were obtained by wet sieving over the indicated sieve sizes for sample analysis of total metals by particle size. A fraction of sample loss occurred in the process of decanting the wash water, a necessary modification to prevent contamination of the sample.

An additional 22 samples were analyzed in conformance with ASTM C136 and C117 to provide additional sieve analyses for surface materials and as a quality control check for six samples wet sieved in which rinsewater was saved. One duplicate laboratory analysis was performed on these samples.

The test results are summarized on the following page:

Reviewed by: Jeremiah B. Bowser

Chen-Northern, Inc.
February 5, 1990

ASTM C136
Modified to
Collect DI
Rinseate

Page 2 of 10

	Sample Date: 6-16-89 at 08:55 A1-SD-101-01 Sample Depth 0.0'- 0.1' <u>Lab No. 5429</u>	Sample Date: 6-13-89 at 16:25 A1-SD-114-01 Sample Depth 0.0'-0.1' <u>Lab No. 5430</u>	Sample Date: 6-16-89 at 08:15 A1-SD-124-01 Sample Depth 0.0'- 0.1' <u>Lab No. 5432</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

P E R C E N T P A S S I N G

1"			
3/4"			
1/2"			
3/8"			100
No. 4		100	99
No. 10	95	99	95
No. 40	57	53	84
No. 80	41	31	69
No. 200	27	22	
DI Rinseate (L)	1.25	4.8	2.75

	Sample Date: 6-22-89 at 09:20 A1-SD-146-01 Sample Depth 0.0'-0.15' <u>Lab No. 5433</u>	Sample Date: 8-3-89 at 10:45 A1-SD-173-01 Sample Depth 0.0'- 0.1' <u>Lab No. 5353</u>	Sample Date: 8-3-89 at 11:45 A1-SD-174-01 Sample Depth 0.0 - 0.1' <u>Lab No. 5434</u>
<u>SIEVE ANALYSIS</u>			

Sieve Size

P E R C E N T P A S S I N G

1"			
3/4"			
1/2"			
3/8"			
No. 4			
No. 10	62	100	66
No. 40	27	96	34
No. 80	18	90	19
No. 200	18	75	10
DI Rinseate	2.0	4.0	1.5

Sample Date:
8-3-89 at 14:15
A1-SD-177-01
Sample Depth
0.0'-0.1'
Lab No. 5354

Sample Date
8-4-89 at 15:10
A1-SD-184-01
Sample Depth
0.0' - 0.1'
Lab No. 5355

Sample Date:
8-4-89 at 16:00
A1-SD-186-01
Sample Depth
0.0'- 0.1'
Lab No. 5356

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

1"			
3/4"			
1/2"			
3/8"			
No. 4			
No. 10	100	100	66
No. 40	97	100	41
No. 80	90	99	31
No. 200	82	92	24
DI Rinseate (l)	5.0	4.0	3.0

Sample Date
7-6-89 at 10:25
A1-SD-505-01
Sample Depth:
0.0'-0.1'
Lab No. 3689

Sample Date
7-6-89 at 10:25
A1-SD-505-01A
Sample Depth:
0.0'-0.1'
Lab No. 5052

Sample Date:
6-20-89 at 17:15
A1-SD-507-01.
Sample Depth
0.0'- 0.1'
Lab No. 5402

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

3/4"			
1/2"			
3/8"			
No. 4			100
No. 10	76	92	88
No. 40	46	76	83
No. 80	35	63	82
No. 200	24	43	78
DI Rinseate (l)	3.4	4.75	2.2

Sample Date:
7-6-89 at 9:44
A1-SD-509-01A
Sample Depth
0.0'- 0.1'
Lab No. 3690

Sample Date
7-6-89 at 11:45
A1-SD-516-01A
Sample Depth:
0.0'-0.1'
Lab No. 5404

Sample Date:
7-6-89 at 14:00
A1-SD-517-01
Sample Depth
0.0'-0.1'
Lab No. 5406

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

No. 4			
No. 10	85	100	100
No. 40	63	70	96
No. 80	54	37	44
No. 200	45	20	20
DI Rinseate (L)	?	3.3	8.8

Sample Date:
7-6-89 at 13:10
A1-SD-518-01
Sample Depth
0.0'-0.1'
Lab No. 3881

Sample Date:
7-6-89 at 13:45
A1-SD-521-01
Sample Depth
0.0'- 0.1'
Lab No. 5408

Sample Date:
7-6-89 at 12:40
A1-SD-524-01
Sample Depth
0.0'- 0.1'
Lab No. 3700

SIEVE ANALYSIS

Sieve Size

P E R C E N T P A S S I N G

No. 4			
No. 10	98	100	100
No. 40	64	45	64
No. 80	34	19	24
No. 200	23	13	8.0
DI Rinseate	2.5	3.5	4.2

Sample Date
6-14-89 at 11:55
A1-SD-117-02
Sample Depth
0.1 - 0.9'
Lab No. 5431

Sample Date:
7-6-89 at 8:20
A1-SD-500-11
Sample Depth
0.5'-2.5'
Lab No. 3688

Sample Date:
7-6-89 at 9:20
A1-SD-507-11
Sample Depth
2.0'- 3.5'
Lab No. 3687

SIEVE ANALYSIS

P E R C E N T P A S S I N G

Sieve Size

No. 4	100		
No. 10	100	99	98
No. 40	100	64	58
No. 80	95	24	26
No. 200	77	7.5	11
DI Rinseate (L)	9.0	2.0	3.5

Sample Date:
6-21-89 at 15:42
A1-SD-508-02A
Sample Depth
0.2'-1.2'
Lab No. 5403

Sample Date:
7-6-89 at 10:00
A1-SD-509-09
Sample Depth
0.8'-2.8'
Lab No. 3691

Sample Date
6-22-89 at 16:20
A1-SD-516-10
Sample Depth:
1.0'-3.0'
Lab No. 5405

SIEVE ANALYSIS

P E R C E N T P A S S I N G

Sieve Size

No. 4	100		
No. 10	97	100	100
No. 40	84	99	70
No. 80	58	99	37
No. 200	16	94	20
DI Rinseate (L)	2.5	2.75	3.45

SIEVE ANALYSIS

Sample Date	Sample Date	Sample Date:
6-23-89 at 14:10	7-6-89 at 13:30	6-26-89 at 18:30
A1-SD-517-09	A1-SD-518-04	A1-SD-611-18
Sample Depth:	Sample Depth:	Sample Depth
1.0'-2.5'	1.5'-2.5'	20.0'- 25.5'
<u>Lab No. 3695</u>	<u>Lab No. 5407</u>	<u>Lab No. 5348</u>

Sieve Size

P E R C E N T P A S S I N G

No. 4		100	
No. 10	90	86	96
No. 40	72	69	42
No. 80	41	61	17
No. 200	24	56	8.8
DI Rinseate (L)	3.3	5.5	5.3

SIEVE ANALYSIS

Sample Date:	Sample Date	Sample Date:
6-29-89 at 9:10	6-28-89 at 11:10	7-6-89 at 8:30
A1-SD-612-13	A1-SD-614-10	A1-SD-619-42S
Sample Depth	Sample Depth:	Sample Depth
24.0'-27.5'	12.0'-20.0'	5.0'-7.0'
<u>Lab No. 5349</u>	<u>Lab No. 5350</u>	<u>Lab No. 5409</u>

Sieve Size

P E R C E N T P A S S I N G

No. 4			100
No. 10	100	99	93
No. 40	90	65	39
No. 80	86	52	22
No. 200	82	44	14
DI Rinseate (L)	3.2	4.0	5.2

Sample Date:
6-14-89 at 08:55
A1-SD-116-01.
Sample Depth
0.0'- 0.1'
Lab No. 5364

Sample Date:
6-14-89 at 09:00
A1-SD-116-01
Sample Depth
0.0'-0.1'
Lab No. 5364*

Sample Date
6-16-89 at 09:30
A1-SD-125-01.
Sample Depth:
0.0'-0.15'
Lab No. 5365

SIEVE ANALYSIS

P E R C E N T P A S S I N G

Sieve Size

1"			
3/4"			
1/2"		100	
3/8"	100	99	100
No. 4	99	98	100
No. 10	98	98	99
No. 20	98	97	98
No. 40	98	97	94
No. 80	98	97	80
No. 200	98	97	69

DI Rinseate (L)

* Field Duplicate

Sample Date:
6-16-89 at 11:50
A1-SD-131-01
Sample Depth
0.0'- 0.1'
Lab No. 5366

Sample Date:
6-22-89 at 09:20
A1-SD-146-01
Sample Depth
0.0'- 0.15'
Lab No. 5433

Sample Date:
8-3-89 at 08:55
A1-SD-171-01
Sample Depth
0.0 - 0.1'
Lab No. 5371

SIEVE ANALYSIS

P E R C E N T P A S S I N G

Sieve Size

1"	100		
3/4"	96	100	
1/2"	96	99	
3/8"	96	98	
No. 4	95	93	100
No. 10	88	66	100
No. 20	71	41	92
No. 40	56	30	81
No. 80	42	21	67
No. 200	33	14	54

SIEVE ANALYSIS

Sample Date:
8-4-89 at 9:35
A1-SD-180-01
Sample Depth
0.0'-0.1'
Lab No. 5367

Sample Date
8-4-89 at 10:12
A1-SD-181-01
Sample Depth
0.0 - 10.2'
Lab No. 5368

Sample Date:
8-4-89 at 11:37
A1-SD-183-01
Sample Depth
0.0'- 4.85'
Lab No. 5369

Sieve Size

P E R C E N T P A S S I N G

1"		100	100
3/4"	100	98	98
1/2"	96	97	94
3/8"	89	92	91
No. 4	79	80	79
No. 10	65	61	66
No. 20	51		47
No. 40	42	46	34
No. 80	34	32	22
No. 200	26	22	15

SIEVE ANALYSIS

Sample Date:
8-4-89 at 15:10
A1-SD-184-01.
Sample Depth
0.0'- 0.1'
Lab No. 5355

Sample Date:
8-4-89 at 16:00
A1-SD-186-01
Sample Depth
0.0'-0.1'
Lab No. 5356

Sample Date:
8-11-89 at 13:30
A1-SD-187-01
Sample Depth
0.0'-0.1'
Lab No. 5370

P E R C E N T P A S S I N G

Sieve Size

1"		100	
3/4"		97	
1/2"		90	100
3/8"	100	85	99
No. 4	100	74	98
No. 10	99	60	88
No. 20	99	45	67
No. 40	99	36	47
No. 80	98	27	28
No. 200	92	21	20

	Sample Date: 7-6-89 at 9:44 A1-SD-509-01A Sample Depth 0.0'- 0.1' <u>Lab No. 3690</u>	Sample Date: 6-19-89 at 15:15 A1-SD-510-01A Sample Depth 0.0'-0.1' <u>Lab No. 5052</u>	Sample Date: 6-23-89 at 14:10 A1-SD-517-09 Sample Depth 1.0'-2.5' <u>Lab No. 3695</u>
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SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

1"			
3/4"	100	100	
1/2"	98	99	
3/8"	97	99	100
No. 4	94	97	99
No. 10	86	93	95
No. 20	72	87	88
No. 40	61	78	63
No. 80	51	67	34
No. 200	43	48	17

	Sample Date: 7-6-89 at 13:10 A1-SD-518-01. Sample Depth 0.0'- 0.1' <u>Lab No. 3881</u>	Sample Date: 6-23-89 at 11:59 A1-SD-519-01 Sample Depth: 0.0'-0.1' <u>Lab No. 5053</u>	Sample Date: 6-23-89 at 8:41 A1-SD-520-01. Sample Depth 0.0'- 0.1' <u>Lab No. 5054</u>
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SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

1"			100
3/4"			97
1/2"			96
3/8"	100	100	95
No. 4	100	99	90
No. 10	98	93	70
No. 40	90	76	47
No. 80	66	53	34
No. 200	40	33	24
DI Rinseate (L)	26	23	17

Sample Date:
7-6-89 at 12:15
A1-SD-522-01
Sample Depth
0.0'-0.1'
Lab No. 5055

Sample Date:
7-6-89 at 12:30
A1-SD-523-01
Sample Depth:
0.0'-0.1'
Lab No. 5056

Sample Date:
7-6-89 at 14:20
A1-SD-525-01
Sample Depth
0.0'- 0.1'
Lab No. 5057

SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

3/4"		100	
1/2"		99	
3/8"		99	100
No. 4	100	99	100
No. 10	100	97	98
No. 20	93	95	89
No. 40	72	86	65
No. 80	49	73	46
No. 200	34	61	37

Sample Date:
7-6-89 at 12:50
A1-SD-526-01
Sample Depth
0.0'-0.1'
Lab No. 5058

SIEVE ANALYSIS

Sieve Size

PERCENT PASSING

1"	
3/4"	
1/2"	
3/8"	
No. 4	100
No. 10	100
No. 20	97
No. 40	81
No. 80	66
No. 200	55



APPENDIX C-5

XRF Data Base

METALS CONCENTRATIONS OF SAMPLES USED IN CALIBRATING MODEL 2

MODEL INPUT NUMBER	SAMPLE NUMBER ¹	Metals Concentrations (mg/kg)						
		ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	ZINC	IRON
1	SBC-01D	35	1	4	40	21	84	18,200
4	SBC-14B	155	3	15	468	192	345	26,100
7	SBC-17D	12	1	18	35	16	71	20,900
9	SBC-26A	12	1	24	82	614	232	15,600
10	SBC-33A	51	10	30	250	406	611	14,300
11	SBC-35A	25	3	46	135	217	374	15,000
12	SBC-37C	107	10	38	270	401	818	33,000
15	SBC-43A	105	3	30	184	93	189	15,000
18	STARS-10	51	3	18	811	312	814	102,000
19	STARS-25	94	4	8	390	442	937	35,200
20	STARS-29	84	5	20	329	125	476	27,000
20	STARS-30	216	3	142	390	563	938	37,100
2	SBC-09A	30	3	15	208	435	469	20,200
3	SBC-10E	49	4	75	217	407	512	19,900
5	SBC-14E	21	2	18	143	103	300	23,900
5	SBC-15B	37	3	18	120	84	139	15,500
8	SBC-19A	22	2	18	143	326	401	21,200
13	SBC-38A	124	3	18	390	263	681	24,400
14	SBC-39E	114	5	20	237	84	243	15,200
16	SBC-65C	88	4	21	233	129	312	13,400
17	WSP-100A	461	1	18	730	374	415	25,500

¹ SBC Prefix Samples from CH2M HILL, 1989e
WSP Prefix Samples from CH2M HILL, 1989a
STARS Prefix Samples from CH2M HILL, 1989f

**METALS CONCENTRATIONS OF SAMPLES USED IN CALIBRATING
MODEL 3**

MODEL INPUT NUMBER	SAMPLE NUMBER ¹	Metals Concentrations (mg/kg)						
		ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	ZINC	IRON
8	SBC-07A	1190	9	35	2060	323	396	61,500
7	SBC-10C	364	7	15	2780	601	1520	37,800
3	SBC17-D	12	1	18	35	16	71	20,900
7	SBC-28B	68	23	123	511	1520	2850	15,800
8	SBC-33A	51	10	36	250	406	611	14,300
27	SBC-35A	25	4	40	135	217	374	15,000
6	SBC-37C	107	10	36	270	401	818	33,000
7	SBC-43A	104	3	40	184	93	189	15,000
8	WSP-111C	491	14	13	2330	301	3110	54,800
6	WSP-119D	180	2	41	1130	280	750	39,100
10	WSP-125D	993	9	40	82,600	449	5100	26,200
11	WSP-134A	161	40	14	1790	44	11,100	132,000
12	WSP-200A	121	15	8	523	326	1,150	12,400
13	WSP-205D	335	4	28	3440	750	3,320	57,300
14	WSP-216D	189	12	41	6920	1200	4,550	61,400
15	WSP-306C	229	5	2	2920	449	454	45,500
16	WSP-313A	474	9	14	783	264	8540	13,800
17	WSP-402A	191	14	9	1790	4	53	16,100
18	WSP-405A	1150	7	42	11,900	922	2950	79,200
14	WSP-411A	147	12	9	11,300	161	2950	22,000
21	STARS-8	491	9	14	4040	1160	2480	30,900
24	STARS-16	1040	32	40	7430	2720	49	31,100
22	STARS-25	94	4	8	100	442	937	35,200
23	STARS-29	94	6	20	329	125	476	27,000
25	STARS-30	216	3	142	470	563	938	37,100
20	STARS-16	1755	23	8	4070	1790	4460	37,900
28	WSP-100A	461	2	42	730	374	415	25,500
28	SBC-14E	21	4	18	113	103	300	23,900
29	SBC-15B	37	3	13	120	44	139	15,500
30	SBC-39E	114	5	20	237	84	243	15,200

¹ SBC Prefix Samples from CH2M HILL, 1989c
WSP Prefix Samples from CH2M HILL, 1989a
STARS Prefix Samples from CH2M HILL, 1989f

**METALS CONCENTRATIONS OF SAMPLES USED IN CALIBRATING
MODEL 4**

MODEL INPUT NUMBER	SAMPLE NUMBER ¹	Metals Concentrations (mg/kg)						
		ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	ZINC	IRON
9	SBC-01D	35	1	4	40	21	84	18,200
2	SBC-07A	1190	9	23	2060	323	396	61,500
3	SBC-10C	364	7	15	2780	601	1520	37,800
4	SBC-17D	12	1	18	35	16	71	20,900
5	SBC-28B	68	23	123	511	1520	2850	15,800
6	SBC-33A	51	10	36	250	406	818	13,800
28	SBC-35A	25	3	46	135	217	374	15,000
7	SBC-37C	107	10	36	270	301	818	33,000
8	SBC-43A	105	3	24	184	93	189	15,000
9	WSP-111C	491	18	18	2330	301	3110	54,800
10	WSP-119D	180	2	18	1130	280	956	31,100
11	WSP-125D	993	9	4	82,600	469	5100	26,200
12	WSP-134A	211	40	14	8790	84	11,100	132,000
13	WSP-200A	121	15	8	523	326	1150	12,400
14	WSP-205D	335	4	28	3440	750	3320	57,300
15	WSP-216D	429	10	41	6920	1200	4550	61,400
16	WSP-306C	229	<0.5	28	2920	449	454	45,500
17	WSP-313A	474	<1	18	783	264	8540	13,800
19	WSP-402A	191	3	7	1790	4	53	16,100
19	WSP-405A	1150	7	42	11,900	922	2950	79,200
20	WSP-411A	147	12	7	11,300	161	2590	22,000
22	STARS-8	491	3	18	4040	1160	2480	30,900
25	STARS-16	1040	32	40	7430	2720	49	31,100
23	STARS-25	94	3	36	390	442	937	35,200
24	STARS-29	84	1	24	329	125	374	27,000
26	STARS-30	216	3	142	470	563	938	37,100
21	STARS-18	1755	23	7	4070	1986	4460	37,900
27	WSP-100A	301	1	18	730	374	415	25,500
29	SBC-14E	21	2	18	113	103	300	23,900
30	SBC-15B	37	3	13	120	44	139	15,500

SBC Prefix Samples from CH2M HILL, 1989e
WSP Prefix Samples from CH2M HILL, 1989a
STARS Prefix Samples from CH2M HILL, 1989f

03/01/90

Revision level: FINAL

Concentrations Predicted from XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-100-01	06/13/89	N	0.00-0.08	4	4	393	16	27	2659	893	2944	
AI-SD-100-02	06/13/89	N	0.08-0.75	4	4	536	21	49	2745	2509	4836	
AI-SD-100-03	06/13/89	N	0.75-1.70	4	4	1000	40	88	8845	5982	16930	
AI-SD-100-04	06/13/89	N	1.70-2.50	8B	4	270 U	15	45	1300	1581	2242	
AI-SD-100-05	06/13/89	N	2.50-3.50	8B	4	270 U	17	33	944	836	1909	
AI-SD-101-01	06/13/89	N	0.00-0.08	4	4	270 U	28	22	3201	444 U	1023	
AI-SD-101-02	06/13/89	N	0.08-0.83	4	4	489	4.8	22	2431	529	992	
AI-SD-101-03	06/13/89	N	0.83-1.58	4	4	804	4.1	106	2265	6694	14930	
AI-SD-102-01	06/13/89	N	0.00-0.08	4	4	270 U	7.0	32	601	540	1112	
AI-SD-102-02	06/13/89	N	0.08-1.83	4	4	399	4.1	24	2142	498	1414	
AI-SD-103-01	06/13/89	N	0.00-0.17	5	4	270 U	6.2	23	345	444 U	524	
AI-SD-104-01	06/13/89	N	0.00-0.08	4	4	296	13	32	6340	991	3775	
AI-SD-104-02	06/13/89	N	0.08-1.16	4	4	605	19	74	7335	4115	10350	
AI-SD-104-03	06/13/89	N	1.16-2.00	8A	4	270 U	20	40	904	1153	4739	
AI-SD-105-01	06/13/89	N	0.00-0.08	6A	2	63 U	8.2	48 U	285	258 U	352	
AI-SD-105-02	06/13/89	N	0.08-4.83	6A	2	63 U	7.3	48 U	485	274	473	
AI-SD-105-03	06/13/89	N	4.83-6.92	6A	2	63 U	2.7	48 U	470	258 U	381	
AI-SD-106-01	06/13/89	N	0.00-0.08	6A	2	63 U	4.0	48 U	252	258 U	420	
AI-SD-107-01	06/13/89	N	0.00-0.08	6A	2	63 U	10	48 U	249 U	258 U	302	
AI-SD-108-01	06/13/89	N	0.00-0.08	4	4	283	6.4	34	533	678	1609	
AI-SD-108-02	06/13/89	N	0.08-1.00	4	4	286	32.6	30	8006	787	13930	
AI-SD-109-01	06/13/89	N	0.00-0.08	4	2	63 U	8.0	48 U	498	258 U	324	
AI-SD-109-02	06/13/89	N	0.08-1.67	4	2	63 U	5.8	48 U	862	258 U	611	
AI-SD-109-03	06/13/89	N	1.67-3.00	8A	4	410	45.2	25	6887	483	12330	
AI-SD-109-04	06/13/89	N	3.00-4.00	8B	4	270 U	13.2	25	2177	444 U	2429	
AI-SD-110-01	06/13/89	N	0.00-0.08	6A	4	270 U	9.4	34	760	702	1948	
AI-SD-110-02	06/13/89	N	0.08-2.00	6A	4	270 U	15	43	516	1477	3251	
AI-SD-111-01	06/13/89	N	0.00-0.08	6A,6C	4	270 U	55.5	31	5793	1196	15420	
AI-SD-112-01	06/13/89	N	0.00-0.08	4	4	270 U	9.6	24	1583	444 U	1668	
AI-SD-112-02	06/13/89	N	0.08-1.08	4	4	270 U	6.7	25	510	444 U	756	
AI-SD-112-03	06/13/89	N	1.08-1.50	4	4	458	6.7	24	586	510	1189	
AI-SD-112-04	06/13/89	N	1.50-2.40	4	4	270 U	11	19	375	444 U	763	
AI-SD-112-05	06/13/89	N	2.40-2.75	2	4	2034	34	7.3	21720	1850	9385	
AI-SD-112-06	06/13/89	N	2.75-5.50	2	4	401	22	19	3511	738	2192	
AI-SD-112-07	06/13/89	N	5.50-6.25	2	4	542	30	49	5952	2759	5976	
AI-SD-113-01	06/13/89	N	0.00-0.17	1	2	63 U	6.4	48 U	249 U	258 U	327	
AI-SD-114-01	06/13/89	N	0.00-0.08	1	4	1318	25	14	2633	1563	1682	
AI-SD-114-02	06/13/89	N	0.08-0.67	2	4	1648	19	15	1844	1987	1641	
AI-SD-114-03	06/13/89	N	0.67-1.25	2	4	952	8.3	14	1122	663	1192	
AI-SD-114-04	06/13/89	N	1.25-3.33	8B	4	270 U	5.9	22	825	444 U	621	
AI-SD-115-01	06/14/89	N	0.00-0.08	6A,6C	4	270 U	11	26	990	487	164	
AI-SD-115-02	06/14/89	N	0.08-1.67	6A,6C	4	270 U	2 U	21	587	444 U	704	

NOTES: 1) Predicted Concentrations are in mg/Kg.

2) Material Codes are defined as: "1" = exposed tailings, "2" = covered tailings, "3" = manganese flue dust, "4" = alluvium/tailings, "5" = railroad ballast, "6" = transported fill, "7" = native soils (surface), "8" = native soils (subsurface), "9" = granitic bedrock.

3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-115-03	06/14/89	N	1.67-3.00	6A,6C	4	270 U	15	22	1164	444 U	1134	
AI-SD-115-04	06/14/89	N	3.00-4.00	6A,6C	4	474	17	26	5057	907	298	
AI-SD-115-05	06/14/89	N	4.00-4.91	6A,6C	4	487	14	32	11890	1255	2987	
AI-SD-115-06	06/14/89	N	4.91-5.17	2	4	850	2.9	33	12900	1904	4283	
AI-SD-116-01	06/14/89	N	0.00-0.00	2	4	2900	42	3.3 U	28120	1966	16920	
AI-SD-117-01	06/14/89	N	0.00-0.08	3	4	394	11	3.3 U	118 U	997	4783	
AI-SD-117-02	06/14/89	N	0.08-0.83	3	4	398	11	3.3 U	118 U	812	4085	
AI-SD-117-03	06/14/89	N	0.83-1.92	3	4	475	7.3	4.6	118 U	945	3323	
AI-SD-117-04	06/14/89	N	1.92-2.50	3	4	438	14	4.9	118 U	779	3037	
AI-SD-117-05	06/14/89	N	2.50-3.25	3	4	270 U	14	3.3 U	118 U	511	4035	
AI-SD-117-06	06/14/89	N	3.25-3.75	3	4	270 U	12	3.3 U	118 U	444 U	2518	
AI-SD-117-07	06/14/89	N	3.75-6.17	3	4	279	13	6.5	118 U	572	4547	
AI-SD-117-08	06/14/89	N	6.17-6.66	3	4	270 U	12	9.2	118 U	733	4576	
AI-SD-117-09	06/14/89	N	6.66-8.83	3	4	270 U	12	12	118 U	678	4191	
AI-SD-117-10	06/14/89	N	8.83-9.30	3	4	456	6.0	18	1477	685	471	
AI-SD-117-11	06/14/89	N	9.30-10.25	3	4	1705	10	13	12630	1773	3543	
AI-SD-118-01	06/14/89	N	0.00-0.08	6A	4	270 U	14	42	601	1679	2257	
AI-SD-118-02	06/14/89	N	0.08-4.92	6A	4	270 U	14	29	533	573	1804	
AI-SD-119-01	06/14/89	N	0.00-0.83	6A,6C	4	270 U	8.1	4.0	118 U	444 U	1043	
AI-SD-119-02	06/14/89	N	0.83-2.33	4	4	270 U	5.9	25	4149	526	2180	
AI-SD-119-03	06/14/89	N	2.33-3.67	4,6A,6C	4	825	6.7	13	1295	663	1008	
AI-SD-119-04	06/14/89	N	3.67-6.08	4	4	270 U	6.5	28	536	573	1174	
AI-SD-119-05	06/14/89	N	6.08-7.16	4	4	575	7.7	24	118 U	1026	618	
AI-SD-120-01	06/15/89	N	0.00-0.08	6A	4	270 U	1.9	33	118 U	444 U	1035	
AI-SD-120-02	06/15/89	N	0.08-0.67	6A,6C	4	270 U	6.7	26	1493	444 U	1412	
AI-SD-120-03	06/15/89	N	0.67-1.25	6A	4	270 U	12	26	1024	444 U	519	
AI-SD-120-04	06/15/89	N	1.25-2.50	6A	4	270 U	4.3	30	360	665	1476	
AI-SD-120-05	06/15/89	N	2.50-3.00	6A	4	270 U	7.5	27	118 U	444 U	594	
AI-SD-121-01	06/15/89	N	0.00-0.08	4	4	270 U	21	27	3120	475	3922	
AI-SD-121-02	06/15/89	N	0.08-1.42	4	4	280	17	30	3125	526	4026	
AI-SD-121-03	06/15/89	N	1.42-1.83	4	4	270 U	32	38	3654	1231	9431	
AI-SD-121-04	06/15/89	N	1.83-2.16	4	4	320	24	36	2701	881	6035	
AI-SD-121-05	06/15/89	N	2.16-2.50	4	4	475	24	31	3471	874	6252	
AI-SD-121-06	06/15/89	N	2.50-3.16	4	4	347	34	21	3047	674	4851	
AI-SD-121-07	06/15/89	N	3.16-4.42	4	4	325	44	21	5813	806	7636	
AI-SD-122-01	06/15/89	N	0.00-0.08	4	4	270 U	2 U	20	1061	444 U	873	
AI-SD-123-01	06/15/89	N	0.00-0.08	4	4	270 U	42	25	6750	802	8196	
AI-SD-123-02	06/15/89	N	0.08-1.16	4	4	298	28	25	1447	563	3047	
AI-SD-123-03	06/15/89	N	1.16-1.50	4	4	270 U	28	27	2654	690	4566	
AI-SD-123-04	06/15/89	N	1.50-2.83	4	4	449	14	23	458	715	3662	
AI-SD-123-05	06/15/89	N	2.83-4.50	4	4	270 U	20	28	1093	483	2853	
AI-SD-123-06	06/15/89	N	4.50-7.40	4	4	270 U	21	31	1006	652	3980	

NOTES: 1) Predicted Concentrations are in mg/Kg.

2) Material Codes are defined as: "1" = exposed tailings, "2" = covered tailings, "3" = manganese flue dust, "4" = alluvium/tailings, "5" = railroad ballast, "6" = transported fill, "7" = native soils (surface), "8" = native soils (subsurface), "9" = granitic bedrock.

3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material		Model	Arsenic	Concentrations Predicted From XRF Readings				Lead	Zinc	Comments
				Code				Cadmium (4)	Chromium	Copper				
AI-SD-123-07	06/15/89	N	7.40-8.00	8A		4	270 U	9.9	29	493		444 U	1657	
AI-SD-124-01	06/16/89	N	0.00-0.08	4		4	270 U	17	32	2556		721	4184	
AI-SD-124-02	06/16/89	N	0.08-0.83	8B		4	270 U	12	27	1510		444 U	2433	
AI-SD-124-03	06/16/89	N	0.83-3.50	8C		4	270 U	11	28	794		577	1916	
AI-SD-124-04	06/16/89	N	3.50-5.00	8C		4	270 U	13	27	709		444 U	1808	
AI-SD-124-05	06/16/89	N	5.00-5.50	8C		4	270 U	16	37	1019		946	3927	
AI-SD-124-06	06/16/89	N	5.50-6.50	8C		4	270 U	12	33	466		591	1772	
AI-SD-125-01	06/16/89	N	0.00-0.17	4		4	270 U	25	30	3635		777	5982	
AI-SD-126-01	06/16/89	N	0.00-0.17	4		4	270 U	12	29	1587		579	2597	
AI-SD-127-01	06/16/89	N	0.00-0.17	4		4	270 U	9.6	27	379		444 U	890	
AI-SD-128-01	06/16/89	N	0.00-0.17	4		4	270 U	16	25	484		444 U	1458	
AI-SD-129-01	06/16/89	N	0.00-1.30	4		4	450	11	25	2448		510	3027	
AI-SD-130-01	06/16/89	N	0.00-0.08	6A		4	270 U	17	24	1077		444 U	2272	
AI-SD-130-02	06/16/89	N	0.08-0.58	6A		4	294	4.8	20	312		444 U	603	
AI-SD-130-03	06/16/89	N	0.58-1.08	6A		4	270 U	8.1	23	317		444 U	529	
AI-SD-130-04	06/16/89	N	1.08-1.67	6A		4	285	14	25	1225		795	1874	
AI-SD-130-05	06/16/89	N	1.67-3.33	6A		4	270	8.0	22	633		444 U	959	
AI-SD-130-06	06/16/89	N	3.33-4.00	6A		4	271	7.4	24	1501		444 U	1013	
AI-SD-131-01	06/16/89	N	0.00-0.08	4		4	270 U	41	20	2837		444 U	6178	
AI-SD-132-01	06/16/89	N	0.00-0.08	7		4	270 U	11	28	414		444 U	1677	
AI-SD-132-02	06/16/89	N	0.08-1.67	7		4	270 U	6.5	27	208		444 U	1229	
AI-SD-133-01	06/16/89	N	0.00-1.08	4		4	327	5.7	22	2221		444 U	1562	
AI-SD-133-02	06/16/89	N	1.08-2.33	4		4	270 U	5.1	28	1727		444 U	1098	
AI-SD-134-01	06/16/89	N	0.00-0.08	4		4	270 U	4.5	22	573		444 U	472	
AI-SD-134-02	06/16/89	N	0.08-1.33	4		2	63 U	.3	48 U	776		258 U	400	
AI-SD-134-03	06/16/89	N	1.33-2.50	4		4	684	2 U	19	6606		444 U	537	
AI-SD-135-01	06/20/89	N	0.00-0.17	6A		2	63 U	6	48 U	249 U		258 U	240 U	
AI-SD-135-02	06/20/89	N	0.17-0.42	6D		2	63 U	2.9	48 U	249 U		939	1179	
AI-SD-136-01	06/20/89	N	0.00-0.08	4		4	356	11	27	1494		561	1454	
AI-SD-136-02	06/20/89	N	0.08-2.33	4		4	270 U	7.9	27	2155		464	1384	
AI-SD-136-03	06/20/89	N	2.33-3.33	4		4	270 U	2.1	32	1344		444 U	851	
AI-SD-136-04	06/20/89	N	3.33-4.00	4		4	373	13	23	347		619	815	
AI-SD-136-05	06/20/89	N	4.00-5.25	4		4	270 U	19	25	1897		503	2167	
AI-SD-136-06	06/20/89	N	5.25-6.42	4		4	318	12	24	7445		444 U	1868	
AI-SD-136-07	06/20/89	N	6.42-7.58	8A		4	990	10	23	12460		1447	4465	
AI-SD-137-01	06/20/89	N	0.00-0.17	4		4	270 U	22	25	3680		468	4219	
AI-SD-137-02	06/20/89	N	0.17-1.17	4		4	990	15	15	2059		658	3164	
AI-SD-137-03	06/20/89	N	1.17-1.75	8A		4	747	12	21	6070		783	2627	
AI-SD-137-04	06/20/89	N	1.75-3.33	8B		4	270 U	35	23	2798		444 U	5087	
AI-SD-138-01	06/20/89	N	0.00-0.67	7		2	63 U	8.4	48 U	353		392	705	
AI-SD-138-02	06/20/89	N	0.67-1.67	7		4	557	5.3	25	452		444 U	628	
AI-SD-138-03	06/20/89	N	1.67-2.67	7		4	270 U	5.8	25	813		444 U	791	

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4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-138-04	06/20/89	N	2.67-3.33	7	4	270 U	6.8	25	1140	444 U	830	
AI-SD-139-01	06/20/89	N	0.00-0.83	60	4	282	27	27	5074	882	4652	
AI-SD-140-01	06/21/89	N	0.00-0.17	5	4	270 U	3.8	26	345	444 U	407	
AI-SD-141-01	06/21/89	N	0.00-0.08	6A	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-141-02	06/21/89	N	0.08-1.66	6A	2	63 U	6.1	48 U	249 U	258 U	240 U	
AI-SD-141-03	06/21/89	N	1.66-2.75	60	4	270 U	4.6	31	684	444 U	1288	
AI-SD-141-04	06/21/89	N	2.75-7.00	6A	4	270 U	11	34	534	713	1907	
AI-SD-141-05	06/21/89	N	7.00-7.67	8A	4	270 U	23	27	1997	444 U	2028	
AI-SD-142-01	06/21/89	N	0.00-0.17	5	4	270 U	5.9	22	1134	444 U	651	
AI-SD-143-01	06/21/89	N	0.00-0.08	4	4	270 U	8.9	25	546	444 U	497	
AI-SD-143-02	06/21/89	N	0.08-1.50	6C	4	333	4.6	34	4021	903	366	
AI-SD-143-03	06/21/89	N	1.50-2.42	2	4	516	4.3	33	2071	1281	659	
AI-SD-143-04	06/21/89	N	2.42-3.66	6A	4	314	3.1	37	312	1105	551	
AI-SD-143-05	06/21/89	N	3.66-4.25	6A, 60	4	270 U	4.8	30	376	650	368	
AI-SD-143-06	06/21/89	N	4.25-5.33	6A	4	270 U	4.8	24	441	444 U	365	
AI-SD-144-01	06/21/89	N	0.00-0.25	6A	2	63 U	9.6	48 U	429	258 U	475	
AI-SD-144-02	06/21/89	N	0.25-1.00	6A	4	270 U	2.7	22	686	444 U	632	
AI-SD-144-03	06/21/89	N	1.00-1.42	2	1	685	6.8	5.8	696	789	428	
AI-SD-144-04	06/21/89	N	1.42-1.66	2	2	420	4.2	48 U	721	258 U	743	
AI-SD-144-05	06/21/89	N	1.66-2.00	2	2	646	2 U	48 U	1259	258 U	1428	
AI-SD-144-06	06/21/89	N	2.00-2.83	2	2	582	1.2	48 U	618	258 U	557	
AI-SD-144-07	06/21/89	N	2.83-3.83	2	2	257	5.4	48 U	279	261	303	
AI-SD-144-08	06/21/89	N	3.83-4.66	2	4	380	8.5	14	804	444 U	441	
AI-SD-144-09	06/21/89	N	4.66-5.50	2	4	270 U	12	28	866	888	487	
AI-SD-144-10	06/21/89	N	5.50-5.66	4	4	1819	3.5	39	7484	3451	2294	
AI-SD-144-11	06/21/89	N	5.66-6.17	8A	4	586	2.6	18	14150	645	214	
AI-SD-145-01	06/22/89	N	0.00-0.08	4	4	270 U	9.3	29	628	684	1816	
AI-SD-145-02	06/22/89	N	0.08-1.42	4	4	270 U	19	23	1635	600	2296	
AI-SD-145-03	06/22/89	N	1.42-2.33	4	4	270 U	4.1	26	1308	452	1646	
AI-SD-145-04	06/22/89	N	2.33-2.50	4	4	270 U	15	23	1552	444 U	1233	
AI-SD-145-05	06/22/89	N	2.50-4.08	4	4	615	15	21	2998	902	3442	
AI-SD-145-06	06/22/89	N	4.08-4.66	8A	4	1103	7.1	18	7503	1081	2858	
AI-SD-146-01	06/22/89	N	0.00-0.17	6E	4	270 U	8.4	22	822	444 U	730	
AI-SD-147-01	06/22/89	N	0.00-0.08	6C, 60	4	270 U	26	20	2668	444 U	3139	
AI-SD-147-02	06/22/89	N	0.08-0.50	2	4	270 U	8.8	22	613	444 U	630	
AI-SD-147-03	06/22/89	N	0.50-1.08	2	2	128	2 U	48 U	249 U	258 U	240 U	
AI-SD-147-04	06/22/89	N	1.08-1.83	4	4	270 U	47	28	3907	1048	4336	
AI-SD-147-05	06/22/89	N	1.83-2.25	8A	4	270 U	16	25	3222	444 U	1938	
AI-SD-147-06	06/22/89	N	2.25-2.50	88	4	270 U	13	25	1527	444 U	1912	
AI-SD-148-01	06/22/89	N	0.00-0.08	4	4	270 U	59	26	5319	954	1302	
AI-SD-148-02	06/22/89	N	0.08-0.75	4	4	270 U	31	22	2810	444 U	5418	
AI-SD-148-03	06/22/89	N	0.75-1.75	4	4	310	25	31	3431	889	4605	

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03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SO-148-04	06/22/89	N	1.75-2.42	4	4	270 U	12	26	1950	525	1756	
AI-SO-149-01	06/22/89	N	0.00-0.08	5	4	288	3.9	17	654	444 U	171	
AI-SO-150-01	06/22/89	N	0.00-0.08	3	4	286	12	9	118 U	1107	6483	
AI-SO-150-02	06/22/89	N	0.08-7.92	3	4	369	28	27	118 U	2013	12400	
AI-SO-150-03	06/22/89	N	7.92-9.57	2	4	270 U	11	8.6	118 U	444 U	1587	
AI-SO-151-01	06/22/89	N	0.00-0.17	5	4	634	12	26	766	894	1162	
AI-SO-151-02	06/22/89	N	0.17-0.50	5	4	380	32	55	2784	2882	6003	
AI-SO-152-01	06/22/89	N	0.00-1.33	2	4	1328	20	17	1912	1662	2075	
AI-SO-152-02	08/04/89	N	1.33-2.75	2	4	1813	8.4	3.3 U	3532	1254	1500	
AI-SO-152-03	08/04/89	N	2.75-3.67	2	4	1913	12.0	6.0	25600	1470	9422	
AI-SO-170-01	08/03/89	N	0.00-0.08	7	2	63 U	7.7	48 U	768	276	355	
AI-SO-170-02	08/03/89	N	0.08-0.58	88	2	63 U	3.8	48 U	384	258 U	307	
AI-SO-170-03	08/03/89	N	0.58-1.25	88	2	63 U	3.3	48 U	470	258 U	240 U	
AI-SO-170-04	08/03/89	N	1.25-3.50	7	2	63 U	7.6	48 U	249 U	258 U	240 U	
AI-SO-170-05	08/03/89	N	3.50-5.50	8C	2	63 U	5.0	48 U	324	258 U	240 U	
AI-SO-171-01	08/03/89	N	0.00-0.08	6A	4	270 U	14	34	1700	952	4220	
AI-SO-171-02	08/03/89	N	0.08-0.83	6A	4	270 U	14	32	771	646	1913	
AI-SO-171-03	08/03/89	N	0.83-1.33	6A	4	288	9.4	53	964	2224	2238	
AI-SO-171-04	08/03/89	N	1.33-3.00	6A	2	63 U	3.5	48 U	515	393	517	
AI-SO-171-05	08/03/89	N	3.00-4.00	6A	2	63 U	13	48 U	249 U	1039	1643	
AI-SO-171-06	08/03/89	N	4.00-5.50	6A	4	270 U	20	32	700	786	3756	
AI-SO-171-07	08/03/89	N	5.50-7.25	6A	4	270 U	12	38	431	1044	3600	
AI-SO-171-08	08/03/89	N	7.25-8.00	6A	4	270 U	14	31	118 U	709	3123	
AI-SO-172-01	08/03/89	N	0.00-0.17	7	4	270 U	10	30	1001	735	2571	
AI-SO-172-02	08/03/89	N	0.17-0.75	7	4	270 U	13	28	1345	668	3325	
AI-SO-172-03	08/03/89	N	0.75-1.67	7	2	63 U	4.1	48 U	372	258 U	551	
AI-SO-173-01	08/03/89	N	0.00-0.08	4	4	270 U	11	27	3079	543	5713	
AI-SO-173-02	08/03/89	N	0.08-0.92	4	4	270 U	20	29	3914	617	5593	
AI-SO-173-03	08/03/89	N	0.92-1.67	4	4	270 U	3.7	19	2507	444 U	432	
AI-SO-173-04	08/03/89	N	1.67-2.42	4	4	292	7.8	19	6357	478	940	
AI-SO-174-01	08/03/89	N	0.00-0.08	7	4	270 U	4.6	26	534	515	1193	
AI-SO-175-01	08/03/89	N	0.00-0.17	7	4	270 U	23	28	1434	689	5685	
AI-SO-175-02	08/03/89	N	0.17-1.50	7	4	270 U	29	23	1862	596	3581	
AI-SO-175-03	08/03/89	N	1.50-3.50	7	4	270 U	20	26	531	501	4234	
AI-SO-175-04	08/03/89	N	3.50-4.83	7	2	63 U	7.7	48 U	249 U	551	839	
AI-SO-176-01	08/03/89	N	0.00-0.08	5	4	448	4	23	660	581	737	
AI-SO-177-01	08/03/89	N	0.00-0.08	4	4	270 U	4	26	1715	444 U	1087	
AI-SO-178-01	08/03/89	N	0.00-0.08	6A	4	270 U	18	25	1207	520	4672	
AI-SO-178-02	08/03/89	N	0.08-3.92	6A	2	63 U	4.5	48 U	326	303	582	
AI-SO-178-03	08/03/89	N	3.92-5.00	6A	4	270 U	16	24	2069	497	4089	
AI-SO-178-04	08/03/89	N	5.00-6.08	6A	4	275	73	27	6875	1252	2378	
AI-SO-179-01	08/04/89	N	0.00-5.58	60	4	270 U	7.1	41	730	1295	2112	

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03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SO-179-02	08/04/89	N	5.58-7.25	4	4	321	9.6	35	948	1251	1979	
AI-SO-179-03	08/04/89	N	7.25-8.50	8A	4	270 U	22	22	2924	444 U	10160	
AI-SO-180-01	08/04/89	N	0.00-6.00	60	2	63 U	2 U	48 U	700	1171	1174	
AI-SO-180-02	08/04/89	N	6.00-7.83	4	4	270 U	24	31	1361	784	5254	
AI-SO-180-03	08/04/89	N	7.83-9.00	8B	4	399	18	19	8117	606	3580	
AI-SO-181-01	08/04/89	N	0.00-11.25	60	4	270 U	15	33	341	758	2639	
AI-SO-181-02	08/04/89	N	11.25-11.66	4	2	63 U	9.1	48 U	583	502	1424	
AI-SO-181-03	08/04/89	N	11.66-12.08	8A	4	270 U	6.2	28	1306	444 U	2999	
AI-SO-182-01	08/04/89	N	0.00-4.58	60	4	270 U	11	28	642	458	3255	
AI-SO-182-02	08/04/89	N	4.58-4.92	4	4	278	4.9	22	524	444 U	1253	
AI-SO-182-03	08/04/89	N	4.92-5.33	4	4	270 U	16	21	924	444 U	2116	
AI-SO-182-04	08/04/89	N	5.33-7.00	4	4	270 U	37.0	26	3188	717	7666	
AI-SO-182-05	08/04/89	N	7.00-7.83	8A	4	1019	16	21	13030	1072	5973	
AI-SO-183-01	08/04/89	N	0.00-4.83	60	2	63 U	8.7	48 U	249 U	879	1359	
AI-SO-183-02	08/04/89	N	4.83-6.17	8A	4	270 U	14	31	1385	603	3589	
AI-SO-184-01	08/04/89	N	0.00-0.08	2	4	692	25	21	7551	1118	4939	
AI-SO-185-01	08/04/89	N	0.00-0.08	5	4	270 U	4.7	22	4204	444 U	286	
AI-SO-186-01	08/04/89	N	0.00-0.33	5	4	406	45	28	11940	1110	13220	
AI-SO-187-01	08/11/89	N	0.00-0.08	5	2	63 U	11	48 U	249 U	987	1558	
AI-SO-500-01	06/19/89	N	0.00-0.10	1	4	275	18	18	1195	444 U	1006	
AI-SO-500-02	06/19/89	N	0.10-1.50	2	4	382	21	23	1191	876	923	
AI-SO-500-03	06/19/89	N	2.50-3.50	2	4	343	9	16	1233	535	556	
AI-SO-500-04	06/19/89	N	4.00-4.50	2	2	567	12	48 U	351	476	624	
AI-SO-500-04B	06/19/89	N	4.50-5.50	4	4	1527	18	95	118 U	6689	8064	
AI-SO-500-05	06/19/89	N	6.00-7.50	4	4	709	13	133	1952	8472	21910	
AI-SO-500-06	06/19/89	N	8.00-9.50	4	4	537	39	67	2092	3961	9309	
AI-SO-500-07	06/19/89	N	10.00-11.50	4	4	270 U	3	32	1592	1078	1655	
AI-SO-500-08	06/19/89	N	12.00-13.50	8B	4	270 U	14	27	2885	533	1785	
AI-SO-500-09	06/19/89	N	14.00-15.50	8C	4	270 U	9	22	2831	444 U	824	
AI-SO-500-10	06/19/89	N	0.50-2.50	2	4	310	12	20	626	588	1061	
AI-SO-500-11	06/19/89	N	0.50-2.50	2	4	344	16	21	1030	692	665	
AI-SO-501-01	06/20/89	N	0.00-0.08	6C	4	1999	8	3.3 U	118 U	613	1079	
AI-SO-501-02	06/20/89	N	0.08-1.50	6C	4	3203	8	3.3 U	118 U	692	592	
AI-SO-501-03	06/20/89	N	2.00-3.50	6C	4	2085	15	3.3 U	118 U	1519	3293	
AI-SO-501-04	06/20/89	N	4.00-5.50	4	4	270 U	7	30	523	807	1874	
AI-SO-501-05	06/20/89	N	6.00-7.50	4	4	270 U	26	35	1039	1475	3407	
AI-SO-501-06	06/20/89	N	8.00-9.50	4	4	270 U	23	30	2250	1250	2100	
AI-SO-501-07	06/20/89	N	10.00-11.50	4	4	270 U	18	34	1052	1179	3136	
AI-SO-501-08	06/20/89	N	12.00-13.50	4	4	270 U	16	33	631	1001	1369	
AI-SO-502-01	06/23/89	N	0.00-0.08	7	4	270 U	23	37	1447	1364	5033	
AI-SO-502-02	06/23/89	N	0.08-1.50	8B	4	270 U	17	33	1019	893	2624	
AI-SO-502-03	06/23/89	N	2.00-3.50	8C	2	63 U	10	48 U	249 U	339	589	

NOTES: 1) Predicted Concentrations are in mg/Kg.

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4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted from XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-502-04	06/23/89	N	4.00-5.50	8C	2	63 U	10	48 U	249 U	314	520	
AI-SD-502-05	06/23/89	N	6.00-7.50	8C	2	63 U	6	48 U	249 U	317	530	
AI-SD-502-06	06/23/89	N	8.00-9.50	8C	2	63 U	6	48 U	249 U	258 U	383	
AI-SD-502-07	06/23/89	N	10.00-11.50	8C	4	270 U	3	24	118 U	444 U	386	
AI-SD-503-01	06/20/89	N	0.00-0.08	4	4	270 U	37	53	1482	2756	6424	
AI-SD-503-02	06/20/89	N	0.08-1.50	4	4	270 U	29	43	670	1701	3449	
AI-SD-503-03	06/20/89	N	2.00-3.50	4	4	270 U	17	43	768	1735	3280	
AI-SD-503-04	06/20/89	N	4.00-5.50	4	4	270 U	44	62	1912	3546	12450	
AI-SD-503-05	06/20/89	N	6.00-7.50	4	4	270 U	73	113	2106	7059	31840	
AI-SD-503-06	06/20/89	N	8.00-9.50	4	4	284	55	90	2086	5404	18420	
AI-SD-504-01	06/20/89	N	0.00-0.08	4	4	270 U	17	10	838	945	5236	
AI-SD-504-02	06/20/89	N	0.08-1.50	4	4	451	11	27	655	1333	2107	
AI-SD-504-03	06/20/89	N	2.00-3.50	4	4	629	10	42	268	2095	2809	
AI-SD-504-04	06/20/89	N	4.00-5.50	4	4	561	18	47	727	2443	4404	
AI-SD-504-05	06/20/89	N	6.00-7.50	4	4	326	45	86	2943	5165	15630	
AI-SD-504-06	06/20/89	N	8.00-9.50	4	4	443	50	71	2466	4205	14100	
AI-SD-504-07	06/20/89	N	10.00-11.50	4	4	270 U	32	54	1285	2458	4675	
AI-SD-504-08	06/20/89	N	12.00-13.50	4	4	270 U	23	22	1856	2496	2608	
AI-SD-504-09	06/20/89	N	17.00-18.50	8B	4	270 U	16	29	385	444 U	2293	
AI-SD-505-01	07/06/89	N	0.00-0.08	1	4	270 U	13	22	4809	444 U	2017	
AI-SD-506-01	06/20/89	N	0.00-0.08	4	4	270 U	61	27	3980	1286	11460	
AI-SD-506-02	06/20/89	N	0.08-1.50	4	4	486	80	76	4737	4660	23560	
AI-SD-506-03A	06/20/89	N	2.00-2.50	4	4	2490	21	3.3 U	21080	1996	10020	
AI-SD-506-03B	06/20/89	N	2.50-3.50	4	4	397	46	63	2489	3591	13900	
AI-SD-506-04A	06/20/89	N	4.00-4.80	4	4	1560	51	37	12450	3376	15530	
AI-SD-506-04B	06/20/89	N	4.80-5.50	4	4	2828	41	5	26810	2787	18950	
AI-SD-506-05	06/20/89	N	6.00-7.50	4	4	554	75	14	2057	8651	30630	
AI-SD-506-06	06/20/89	N	8.00-9.50	4	4	289	87	120	2754	7491	38660	
AI-SD-506-07A	06/20/89	N	10.00-10.80	4	4	682	96	149	1798	9548	39980	
AI-SD-506-07B	06/20/89	N	10.80-11.50	8A	4	270 U	35	59	309	2852	9088	
AI-SD-506-09A	06/20/89	N	14.00-15.00	8A	2	63 U	8	48 U	249 U	477	1145	
AI-SD-506-09B	06/20/89	N	15.00-15.50	8B	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-506-10	06/20/89	N	16.00-17.50	8C	2	63 U	4	48 U	249 U	258 U	240 U	
AI-SD-507-01	06/20/89	N	0.00-0.08	4	4	820	9	53	3064	2835	7799	
AI-SD-507-02A	06/20/89	N	0.08-1.00	4	4	270 U	23	34	813	1704	3863	
AI-SD-507-02B	06/20/89	N	1.00-1.50	4	4	1235	21	88	1004	5793	8999	
AI-SD-507-03	06/20/89	N	2.00-3.50	2	4	912	30	45	1405	2964	3776	
AI-SD-507-04	06/20/89	N	4.00-4.50	2	4	1089	15	16	1763	1423	1188	
AI-SD-507-05A	06/20/89	N	6.00-7.00	2	4	1194	5	18	979	1604	1117	
AI-SD-507-05B	06/20/89	N	7.00-7.50	4	4	1271	25	112	1518	7323	9751	
AI-SD-507-06	06/20/89	N	8.00-9.50	4	4	431	68	135	7009	8526	3443	
AI-SD-507-07A	06/20/89	N	10.00-10.50	4	4	468	52	86	2172	4847	1597	

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03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-507-07B	06/20/89	N	10.50-11.50	8A	4	270 U	19	41	273	1435	5013	
AI-SD-507-08A	06/20/89	N	12.00-13.00	8A	4	270 U	19	31	643	822	3591	
AI-SD-507-08B	06/20/89	N	13.00-13.50	8B	4	270 U	18	28	931	514	3400	
AI-SD-507-09	06/20/89	N	14.00-14.10	8B	4	270 U	12	30	867	774	1749	
AI-SD-507-10	07/06/89	N	2.00-4.00	2	4	603	21	28	825	1429	4192	
AI-SD-507-11	07/06/89	N	2.00-3.20	2	4	1024	37	36	2232	2587	3876	
AI-SD-507-11	07/06/89	N	2.00-3.50	2	4	1024	37	36	2232	2587	3876	
AI-SD-508-01	06/21/89	N	0.00-0.08	4	4	363	2 U	16	2300	462	1565	
AI-SD-508-02A	06/21/89	N	0.10-0.50	2	2	293	6	48 U	307	552	641	
AI-SD-508-03	06/21/89	N	2.00-3.50	4	2	540	27	60	249 U	2583	3980	
AI-SD-508-04	06/21/89	N	0.30-2.30	2	4	812	14	39	873	2412	4089	
AI-SD-508-05	06/21/89	N	4.00-5.50	4	4	374	18	37	1905	1719	2188	
AI-SD-508-07A	06/21/89	N	8.00-8.50	4	4	450	22	60	4498	3170	5705	
AI-SD-508-07B	06/21/89	N	8.50-9.50	8A	4	270 U	31	31	1911	1022	8366	
AI-SD-509-01	06/22/89	N	0.00-0.10	4	4	838	120	18	17260	1855	29840	
AI-SD-509-01A	06/22/89	N	0.00-0.01	4	4	838	120	18	17260	1855	29840	
AI-SD-509-02	06/22/89	N	0.10-1.60	4	4	1909	145	12	32260	3122	47040	
AI-SD-509-03	06/22/89	N	2.00-3.50	4	4	1687	150	13	31890	2893	61340	
AI-SD-509-04A	06/22/89	N	4.00-5.20	8A	4	1915	48	3.3 U	24040	1847	16750	
AI-SD-509-04B	06/22/89	N	5.20-5.50	8B	4	386	9	21	5634	722	932	
AI-SD-509-05	06/22/89	N	6.00-7.50	8B	4	317	6	22	5738	628	398	
AI-SD-509-06	06/22/89	N	8.00-9.50	8C	4	333	11	21	3745	607	1477	
AI-SD-509-07	06/22/89	N	14.50-16.00	8C	2	63 U	7	48 U	636	258 U	290	
AI-SD-509-09	06/22/89	N	0.80-2.80	4	4	1897	223	11	44930	3557	83900	
AI-SD-510-01	06/19/89	N	0.00-0.08	1	4	394	28	30	4009	1385	3855	
AI-SD-510-01A	06/19/89	N	0.00-0.08	1	4	692	57	20	7101	1447	8821	
AI-SD-510-02	06/19/89	N	0.08-1.30	6C	4	529	55	23	24940	1255	18680	
AI-SD-510-03	06/19/89	N	2.00-3.50	6C	4	270 U	94	20	46380	1112	32880	
AI-SD-510-04A	06/19/89	N	4.00-4.70	6C	4	825	29	36	33030	2281	11880	
AI-SD-510-04B	06/19/89	N	4.70-4.90	4	4	1811	7	16	30780	2068	8436	
AI-SD-510-04C	06/19/89	N	4.90-5.50	4	4	515	8	25	7981	1114	2699	
AI-SD-510-05	06/19/89	N	6.00-7.50	8A	4	270 U	18	36	5683	1459	3119	
AI-SD-510-06	06/19/89	N	8.00-9.50	8B	4	270 U	13	24	1718	444 U	1003	
AI-SD-510-07	06/19/89	N	1.00-11.50	8C	2	63 U	5	48 U	333	258 U	258	
AI-SD-510-08	06/19/89	N	12.00-13.50	8C	2	63 U	4	48 U	249 U	258 U	240 U	
AI-SD-511-01	06/21/89	N	0.00-0.10	4	4	270 U	23	19	4180	476	3507	
AI-SD-511-02	06/21/89	N	0.10-1.60	4	4	270 U	21	24	2202	462	2725	
AI-SD-511-03	06/21/89	N	2.00-3.50	4	4	1112	207	39	14780	3999	62200	
AI-SD-511-04A	06/21/89	N	4.00-5.00	4	4	1718	96	4	22490	2022	30050	
AI-SD-511-04B	06/21/89	N	5.00-5.50	6C	4	1442	23	11	6482	1404	6363	
AI-SD-511-05	06/21/89	N	6.00-7.50	6C	4	512	106	20	15960	1438	23050	
AI-SD-511-06	06/21/89	N	8.00-9.50	8A	4	270 U	88	20	6901	778	16820	

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03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-511-07	06/21/89	N	12.00-13.50	8C	4	270 U	24	20	1589	444 U	3336	
AI-SD-511-08	06/21/89	N	14.00-14.50	8C	4	270 U	15	23	1100	444 U	1575	
AI-SD-512-02	06/22/89	N	0.10-1.50	6C	4	615	21	21	6050	965	5774	
AI-SD-512-03	06/22/89	N	2.00-3.50	6C	4	357	27	25	4154	851	5298	
AI-SD-512-04	06/22/89	N	4.00-5.50	6C	4	590	28	24	8710	997	6014	
AI-SD-512-05	06/22/89	N	6.00-7.50	6C	4	512	37	36	8723	1932	10940	
AI-SD-512-06	06/22/89	N	8.00-9.50	8A	4	545	42	54	7180	3073	11400	
AI-SD-512-07	06/22/89	N	10.00-11.50	88	4	270 U	37	22	1954	444 U	5746	
AI-SD-512-08	06/22/89	N	12.00-13.50	8C	4	270 U	13	25	957	444 U	2493	
AI-SD-512-09	06/22/89	N	14.00-15.50	8C	2	63 U	5	48 U	249 U	258 U	373	
AI-SD-513-02	06/22/89	N	0.10-1.50	6C	4	301	57	38	6084	1538	17120	
AI-SD-513-03	06/22/89	N	2.00-3.50	6C	4	361	88	50	8385	2704	25080	
AI-SD-513-04	06/22/89	N	6.00-7.50	6C	4	270 U	68	38	5877	1883	16810	
AI-SD-513-05	06/22/89	N	8.00-9.50	6C	4	2013	40	39	6910	3658	12820	
AI-SD-513-06	06/22/89	N	10.00-11.50	6C	4	742	72	43	6363	2619	25150	
AI-SD-513-07	06/22/89	N	12.00-13.50	4	4	376	75	82	3044	5085	23350	
AI-SD-513-08	06/22/89	N	14.00-15.50	8A	4	270 U	8	1234	5725	444 U	1002	
AI-SD-513-09	06/22/89	N	16.00-17.50	88	4	270 U	10	27	416	444 U	1672	
AI-SD-513-10	06/22/89	N	18.00-18.50	8C	4	270 U	10	25	242	444 U	978	
AI-SD-513-11	06/22/89	N	20.00-21.50	2	2	63 U	3	48 U	249 U	258 U	362	
AI-SD-514-01	06/22/89	N	10.00-11.50	8C	4	270 U	18	22	585	444 U	1136	
AI-SD-514-02	06/22/89	N	25.00-25.30	8C	2	63 U	4	48 U	249 U	305	654	
AI-SD-514-03	06/22/89	N	25.30-25.50	8C	2	63 U	9	48 U	249 U	258 U	572	
AI-SD-515-01	06/23/89	N	0.08-1.50	4	4	270 U	13	24	904	444 U	1386	
AI-SD-515-02	06/23/89	N	2.00-3.50	4	4	270 U	17	26	536	444 U	1131	
AI-SD-515-03	06/23/89	N	4.00-5.50	4	4	270 U	46	22	2949	444 U	8530	
AI-SD-515-04	06/23/89	N	6.00-7.50	4	4	363	32	23	3287	812	8121	
AI-SD-515-05	06/23/89	N	8.00-9.50	4	4	2402	24	21	7214	2893	10180	
AI-SD-515-06	06/23/89	N	10.00-11.50	4	4	2611	52	23	25930	3817	24380	
AI-SD-515-07	06/23/89	N	12.00-13.50	4	4	2787	96	4	42980	3270	42780	
AI-SD-515-08	06/23/89	N	14.00-15.50	8A	4	3019	117	4	49610	3504	62950	
AI-SD-515-09	06/23/89	N	16.00-17.50	88	2	63 U	2	48 U	423	258 U	560	
AI-SD-516-01	06/22/89	N	0.10-1.50	2	4	614	14	11	981	506	756	
AI-SD-516-01A	06/22/89	N	0.00-0.08	1	4	428	11	11	1165	444 U	758	
AI-SD-516-02	06/22/89	N	2.00-3.50	2	4	483	17	17	1044	579	1022	
AI-SD-516-03	06/22/89	N	4.00-6.00	2	4	360	15	18	1134	568	975	
AI-SD-516-04A	06/22/89	N	6.00-7.30	4	4	571	34	17	3760	840	2393	
AI-SD-516-048	06/22/89	N	7.30-7.50	4	4	270 U	36	27	1767	552	7031	
AI-SD-516-05A	06/22/89	N	7.50-8.50	8A	4	270 U	27	22	2264	444 U	4984	
AI-SD-516-058	06/22/89	N	8.50-9.00	8A	4	270 U	24	19	1906	444 U	162 U	
AI-SD-516-06	06/22/89	N	9.00-9.50	88	4	270 U	7	18	958	444 U	213	
AI-SD-516-07	06/22/89	N	2.50-4.00	2	4	674	18	17	1463	849	1494	

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03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SO-516-08A	06/22/89	N	4.00-4.50	2	4	552	24	19	2985	959	1461	
AI-SO-516-08B	06/22/89	N	4.50-5.50	4	4	440	57	79	4970	4352	21040	
AI-SO-516-09	06/22/89	N	5.50-7.00	4	4	270 U	28	24	2180	454	6085	
AI-SO-516-10	06/22/89	N	1.00-3.00	2	4	403	11	14	743	444 U	663	
AI-SO-517-01	07/06/89	N	0.00-0.08	1	1	338	6	34	31	247	333	
AI-SO-517-02	06/23/89	N	0.08-1.50	2	2	802	11	48 U	249 U	561	777	
AI-SO-517-03A	06/23/89	N	2.00-2.50	2	2	1048	11	48 U	473	554	504	
AI-SO-517-03B	06/23/89	N	2.50-3.50	8A	2	748	5	48 U	527	289	500	
AI-SO-517-04	06/23/89	N	4.00-5.50	8B	4	520	4	14	1217	444 U	329	
AI-SO-517-05	06/23/89	N	6.00-7.50	8C	4	460	4	14	973	444 U	245	
AI-SO-517-06	06/23/89	N	8.00-9.50	8C	2	63 U	9	48 U	608	258 U	353	
AI-SO-517-07	06/23/89	N	10.00-11.50	8C	2	63 U	9	48 U	665	348	896	
AI-SO-517-08	06/23/89	N	12.00-13.50	8C	2	63 U	7	48 U	249 U	258 U	240 U	
AI-SO-517-09	07/06/89	N	1.00-2.50	2	2	397	11	48 U	249 U	258 U	290	
AI-SO-518-01	07/06/89	N	0.00-0.01	1	4	584	7	20	1140	444 U	567	
AI-SO-518-02	07/06/89	N	0.10-1.00	2	4	844	13	14	717	643	890	
AI-SO-518-03	07/06/89	N	1.00-1.50	8A	4	1098	2	27	29010	1876	2450	
AI-SO-518-04	07/06/89	N	1.50-2.50	8A	4	270 U	127	20	14490	1228	37230	
AI-SO-519-01	06/23/89	N	0.00-0.08	4	4	459	12	20	1236	588	1589	
AI-SO-519-02	06/23/89	N	2.00-3.50	4	2	431	7	48 U	362	424	825	
AI-SO-519-03	06/23/89	N	4.00-4.50	8A	4	509	40	57	4399	2901	10460	
AI-SO-519-04	06/23/89	N	4.50-5.50	8B	4	270 U	21	27	668	444 U	3079	
AI-SO-519-05	06/23/89	N	6.00-7.60	8C	4	270 U	2	20	1462	444 U	445	
AI-SO-519-06	06/23/89	N	8.00-9.50	8C	2	63 U	9	48 U	623	356	724	
AI-SO-519-07	06/23/89	N	10.00-11.50	8C	2	63 U	6	48 U	609	286	769	
AI-SO-519-08	06/23/89	N	12.00-13.50	8C	2	63 U	3	48 U	249	258 U	520	
AI-SO-520-01	06/23/89	N	0.00-0.08	4	2	63 U	8	48 U	249 U	258 U	357	
AI-SO-520-02	06/23/89	N	0.08-1.50	4	2	63 U	4	48 U	249 U	258 U	240 U	
AI-SO-520-03	06/23/89	N	2.00-3.50	4	2	63 U	4	48 U	508	258 U	240 U	
AI-SO-520-04	06/23/89	N	4.00-5.50	4	4	270 U	2	25	1059	444 U	827	
AI-SO-520-05	06/23/89	N	6.00-7.50	4	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SO-520-06	06/23/89	N	8.00-9.50	4	4	270 U	11	25	625	444 U	2428	
AI-SO-520-07	06/23/89	N	10.00-11.50	8B	2	582	2	48 U	582	258 U	308	
AI-SO-520-08	06/23/89	N	12.00-13.50	8C	2	63 U	5	48 U	366	258 U	240 U	
AI-SO-521-01	07/06/89	N	0.00-0.08	1	4	309	9	16	1073	444 U	891	
AI-SO-522-01	07/06/89	N	0.00-0.08	1	4	904	7	15	1938	988	1672	
AI-SO-523-01	07/06/89	N	0.00-0.08	1	4	1703	45	26	5437	2552	13300	
AI-SO-524-01	07/06/89	N	0.00-0.08	1	4	1166	4	5	694	751	961	
AI-SO-525-01	07/06/89	N	0.00-0.08	1	2	866	6	48 U	531	711	944	
AI-SO-526-01	07/06/89	N	0.00-0.08	1	4	1163	18	11	2334	1116	2773	
AI-SO-601-01	06/28/89	N	0.00-0.08	6A	2	63 U	9	48 U	683	258 U	431	
AI-SO-601-02	06/28/89	N	0.08-1.50	6A	2	63 U	2 U	48 U	471	258 U	271	

NOTES: 1) Predicted Concentrations are in mg/Kg.

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3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample		Material		Concentrations Predicted From XRF Readings							Comments
		Type	Sample Interval	Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc		
AI-SD-601-03	06/28/89	N	4.00-5.50	88	2	63 U	2 U	48 U	283	258 U	240 U		
AI-SD-601-04	06/28/89	N	6.00-7.50	8C	2	63 U	9	48 U	414	258 U	559		
AI-SD-601-05	06/28/89	N	10.00-11.50	8C	2	63 U	7	48 U	249 U	258 U	240 U		
AI-SD-601-06	06/28/89	N	15.00-16.50	8C	2	63 U	3	48 U	325	258 U	240 U		
AI-SD-602-01	06/29/89	N	0.00-0.08	6A	4	270 U	6	28	1789	444 U	1048		
AI-SD-602-02	06/29/89	N	0.08-1.50	6A	2	63 U	2	48 U	526	258 U	456		
AI-SD-602-03	06/29/89	N	4.00-5.50	6E	2	63 U	7	48 U	527	462	750		
AI-SD-602-04	06/29/89	N	8.00-9.50	6E	4	270 U	8	24	2890	444 U	962		
AI-SD-602-05	06/29/89	N	12.00-12.40	60	4	384	6	29	11970	548	3176		
AI-SD-602-06	06/29/89	N	14.00-15.50	6C	4	999	13	17	4001	686	3402		
AI-SD-602-07	06/29/89	N	16.00-16.30	6C	4	509	15	45	12530	992	11470		
AI-SD-602-08	06/29/89	N	18.00-19.50	6C	4	288	32	45	12600	558	17630		
AI-SD-602-09	06/29/89	N	20.50-22.00	9B	2	63 U	15	48 U	1436	258 U	1819		
AI-SD-602-10	06/29/89	N	25.00-26.50	8C	2	63 U	3	48 U	490	258 U	391		
AI-SD-602-11	06/29/89	N	26.50-28.00	8C	2	63 U	9	48 U	573	258 U	544		
AI-SD-603-01	06/28/89	N	0.00-0.08	6A	2	63 U	2 U	48 U	515	258 U	433		
AI-SD-603-02	06/28/89	N	0.08-1.50	6A	2	63 U	5	48 U	379	258 U	438		
AI-SD-603-03	06/28/89	N	5.00-6.50	2	2	63 U	5	48 U	249 U	258 U	240 U		
AI-SD-603-04A	06/28/89	N	7.00-7.50	2	2	114	2 U	48 U	447	258 U	496		
AI-SD-603-04B	06/28/89	N	7.50-8.00	6C	4	380	5	27	597	619	904		
AI-SD-603-05A	06/28/89	N	9.00-9.50	8A	4	1292	11	33	118 U	2395	4198		
AI-SD-603-05B	06/28/89	N	9.50-10.50	8A	4	470	15	19	5148	600	2615		
AI-SD-603-06	06/28/89	N	11.00-12.50	8A	4	270 U	13	24	1408	444 U	1341		
AI-SD-603-07	06/28/89	N	13.00-14.50	8A	4	270 U	10	25	2334	444 U	1544		
AI-SD-603-08	06/28/89	N	15.00-16.50	8B	2	63 U	2 U	48 U	384	258 U	649		
AI-SD-604-01	07/06/89	N	0.00-0.08	6A	2	63 U	10	48 U	611	258 U	387		
AI-SD-604-02	06/28/89	N	0.08-1.50	6A	2	63 U	6	48 U	515	258 U	394		
AI-SD-604-03	06/28/89	N	2.00-3.50	6A	2	63 U	4	48 U	569	258 U	240 U		
AI-SD-604-04	06/28/89	N	6.00-7.50	6A	2	63 U	4	48 U	299	258 U	320		
AI-SD-604-05	06/28/89	N	10.00-11.50	8A	2	63 U	4	48 U	679	258 U	288		
AI-SD-604-06	06/28/89	N	15.00-16.50	8C	2	63 U	2	48 U	579	258 U	372		
AI-SD-604-07	06/28/89	N	20.00-21.50	8C	2	63 U	8	48 U	462	258 U	416		
AI-SD-604-08	06/28/89	N	25.00-26.50	8C	2	63 U	6	48 U	249 U	258 U	240 U		
AI-SD-605-01	06/29/89	N	0.00-0.08	6A	2	63 U	7	48 U	646	258 U	330		
AI-SD-605-02	06/29/89	N	0.08-1.50	6A	2	63 U	9	48 U	815	258 U	461		
AI-SD-605-03	06/29/89	N	4.00-5.50	6C	4	318	6	25	1401	444 U	1240		
AI-SD-606-01	06/29/89	N	0.00-0.08	6A	2	63 U	5	48 U	728	258 U	384		
AI-SD-606-02	06/29/89	N	0.08-1.50	6A	2	63 U	5	48 U	648	289	667		
AI-SD-606-03	06/29/89	N	2.00-3.50	6C	4	528	31	53	7348	1722	19340		
AI-SD-606-04	06/29/89	N	4.00-5.50	6C	4	579	27	40	8476	1112	18600		
AI-SD-606-05	06/29/89	N	10.00-11.50	6C	4	316	8	40	4963	677	5322		
AI-SD-606-07	06/29/89	N	20.00-21.50	6C	4	1527	4	35	2770	1868	3198		

NOTES: 1) Predicted Concentrations are in mg/Kg.

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3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

Revision level: FINAL

03/01/90

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-606-08	06/29/89	N	23.50-25.00	6C	4	697	17	41	7218	1101	6719	
AI-SD-607-01	06/28/89	N	0.00-0.08	6A	2	63 U	7	48 U	356	258 U	240 U	
AI-SD-607-02	06/28/89	N	0.08-1.50	6A	2	63 U	10	48 U	249 U	258 U	240 U	
AI-SD-607-03	06/28/89	N	2.00-3.50	6A	4	270 U	9	27	716	444 U	1658	
AI-SD-607-04	06/28/89	N	6.00-7.50	6E	2	63 U	2 U	48 U	488	258 U	345	
AI-SD-607-05	06/28/89	N	12.00-13.50	6E	2	63 U	10	48 U	424	258 U	240 U	
AI-SD-607-06	06/28/89	N	19.00-20.50	8A	4	270 U	13	27	3131	444 U	1956	
AI-SD-607-07	06/28/89	N	21.00-22.50	8A	4	270 U	14	26	1608	444 U	1930	
AI-SD-607-08	06/28/89	N	23.00-24.50	8B	4	270 U	5	26	704	444 U	935	
AI-SD-609-01	06/28/89	N	0.00-0.08	7	2	63 U	11	48 U	348	258 U	385	
AI-SD-609-02	06/28/89	N	0.08-1.50	8B	2	63 U	2	48 U	296	258 U	408	
AI-SD-609-03	06/28/89	N	2.00-3.50	8C	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-609-04	06/28/89	N	4.00-5.50	8C	2	63 U	3	48 U	249 U	258 U	240 U	
AI-SD-609-05	06/28/89	N	8.00-9.50	8C	2	63 U	2	48 U	249 U	258 U	240 U	
AI-SD-609-06	06/28/89	N	12.00-13.50	8C	2	63 U	2 U	48 U	356	258 U	240 U	
AI-SD-609-07	06/28/89	N	15.00-16.50	8C	2	63 U	8	48 U	258	258 U	298	
AI-SD-609-08	06/28/89	N	20.00-21.50	8C	2	63 U	6	48 U	328	258 U	240 U	
AI-SD-609-09	06/28/89	N	25.00-26.50	8C	4	270 U	2 U	25	552	444 U	679	
AI-SD-610-01	06/27/89	N	0.00-0.08	6A	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-610-02	06/27/89	N	0.08-1.00	6A	2	63 U	5	48 U	256	258 U	248	
AI-SD-611-02A	06/26/89	N	0.08-1.30	6E	2	63 U	4	48 U	329	258 U	294	
AI-SD-611-02B	06/26/89	N	1.30-1.50	6E	2	63 U	2 U	48 U	357	258 U	240 U	
AI-SD-611-03	06/26/89	N	2.00-3.50	6E	2	63 U	3	48 U	579	258 U	393	
AI-SD-611-04	06/26/89	N	4.00-5.50	6E	2	63 U	7	48 U	366	258 U	281	
AI-SD-611-05	06/26/89	N	6.00-7.50	6E	2	63 U	11	48 U	339	258 U	315	
AI-SD-611-07	06/26/89	N	10.00-11.50	6E	2	63 U	7	48 U	381	258 U	240 U	
AI-SD-611-08	06/26/89	N	12.00-13.50	6E	2	63 U	8	48 U	586	258 U	284	
AI-SD-611-09	06/26/89	N	14.00-15.50	6E	2	63 U	9	48 U	533	258 U	240 U	
AI-SD-611-10	06/26/89	N	16.00-17.50	6E	2	63 U	2	48 U	524	258 U	240 U	
AI-SD-611-11	06/26/89	N	18.00-19.50	6E	2	63 U	7	48 U	356	258 U	240 U	
AI-SD-611-12	06/26/89	N	20.00-21.50	2	2	366	2 U	48 U	486	519	496	
AI-SD-611-13	06/26/89	N	22.00-23.50	2	2	307	6	48 U	502	596	759	
AI-SD-611-14A	06/26/89	N	24.00-25.30	2	2	299	2	48 U	481	414	702	
AI-SD-611-14B	06/26/89	N	25.30-25.50	2	4	688	11	15	837	444 U	1907	
AI-SD-611-15A	06/26/89	N	26.00-26.30	8A	4	270 U	9	27	21840	444 U	3862	
AI-SD-611-15B	06/26/89	N	26.30-27.50	8A	4	270 U	2 U	25	17100	444 U	352	
AI-SD-611-16	06/26/89	N	28.00-29.50	8B	2	63 U	7	48 U	486	258 U	240 U	
AI-SD-611-17	06/26/89	N	30.00-31.50	8C	4	270 U	6	22	1238	444 U	531	
AI-SD-611-18	06/26/89	N	22.00-26.50	2	4	750	5	40	250	2100	3500	
AI-SD-612-01	06/27/89	N	2.00-3.50	6A	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-612-02	06/27/89	N	4.00-5.50	6C	4	270 U	15	34	570	1047	2867	
AI-SD-612-03	06/27/89	N	6.00-7.50	6E	2	63 U	3	48 U	257	258 U	253	

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4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-612-04	06/27/89	N	10.00-11.50	6E	2	63 U	2 U	48 U	337	258 U	285	
AI-SD-612-05	06/27/89	N	15.00-16.50	6E	2	63 U	2 U	48 U	446	258 U	335	
AI-SD-612-06	06/27/89	N	19.00-19.40	6E	2	63 U	2 U	48 U	432	258 U	274	
AI-SD-612-07	06/27/89	N	20.50-22.00	2	4	370	8	32	256	1201	1021	
AI-SD-612-08	06/27/89	N	22.00-23.50	2	4	745	6	24	118 U	1103	1185	
AI-SD-612-09	06/27/89	N	24.00-25.50	8A	2	680	9	48 U	1096	420	1411	
AI-SD-612-10	06/27/89	N	26.00-27.50	8A	4	294	9	19	1255	444 U	1526	
AI-SD-612-11	06/27/89	N	28.00-29.10	8B	2	63 U	5	48 U	764	258 U	1304	
AI-SD-612-12	06/27/89	N	20.50-23.50	2	2	515	9	48 U	482	912	1231	
AI-SD-613-01	06/29/89	N	0.00-0.08	6A	2	63 U	4	48 U	249 U	258 U	262	
AI-SD-613-02	06/29/89	N	0.08-1.50	6E	4	270 U	14	26	1101	444 U	2440	
AI-SD-613-03	06/29/89	N	5.00-5.20	6E	4	270 U	13	28	2210	547	5473	
AI-SD-613-04	06/29/89	N	10.00-11.50	6E	2	63 U	12	48 U	359	280	680	
AI-SD-613-05	06/29/89	N	15.00-16.50	6E	2	63 U	4	48 U	526	258 U	527	
AI-SD-613-06	06/29/89	N	21.00-22.50	4	2	594	5	48 U	808	258 U	748	
AI-SD-613-07	06/29/89	N	23.00-24.50	8A	4	270 U	7	25	1197	444 U	744	
AI-SD-613-08	06/29/89	N	25.00-26.50	8B	2	63 U	10	48 U	816	258 U	654	
AI-SD-614-01	06/28/89	N	0.00-0.08	6A	2	63 U	2	48 U	440	258 U	279	
AI-SD-614-02	06/28/89	N	0.08-1.50	6A	2	63 U	2	48 U	249 U	258 U	240 U	
AI-SD-614-03A	06/28/89	N	4.00-5.20	4	4	2040	8	11	4168	1765	1470	
AI-SD-614-03B	06/28/89	N	5.20-5.50	4	4	1711	3	17	3540	1587	1268	
AI-SD-614-04A	06/28/89	N	6.00-7.10	4	4	1957	2 U	16	29380	1949	642	
AI-SD-614-04B	06/28/89	N	7.10-7.50	4	4	3042	2	21	40340	3483	4623	
AI-SD-614-05	06/28/89	N	8.00-9.50	8A	4	270 U	8	23	3695	444 U	483	
AI-SD-614-06	06/28/89	N	10.00-11.50	8B	4	270 U	6	26	1146	444 U	413	
AI-SD-614-07	06/28/89	N	12.00-13.50	8C	2	63 U	4	48 U	408	258 U	266	
AI-SD-614-08	06/28/89	N	15.00-16.50	8C	2	63 U	11	48 U	514	258 U	353	
AI-SD-614-09	06/28/89	N	18.50-20.00	8C	2	63 U	3	48 U	249 U	258 U	240 U	
AI-SD-615-01	06/27/89	N	0.00-0.08	6A	2	63 U	6	48 U	266	258 U	446	
AI-SD-615-02	06/27/89	N	0.08-1.50	6A	4	270 U	6	25	1246	444 U	957	
AI-SD-615-03	06/27/89	N	2.00-3.50	6A	2	63 U	5	48 U	249 U	258 U	273	
AI-SD-615-04	06/27/89	N	4.00-5.50	4	4	1316	2	24	778	1417	833	
AI-SD-615-05A	06/27/89	N	5.30-6.50	2	4	2771	2 U	12	1563	2732	1050	
AI-SD-615-05B	06/27/89	N	6.50-7.20	4	4	4380	2 U	37	6856	6070	4679	
AI-SD-615-05C	06/27/89	N	7.20-7.50	4	4	2826	2 U	51	16430	4989	2624	
AI-SD-615-06	06/27/89	N	8.00-9.50	8B	4	270 U	16	25	4034	444 U	1454	
AI-SD-615-07	06/27/89	N	10.00-11.50	8C	4	270 U	4	28	1045	444 U	609	
AI-SD-615-08	06/27/89	N	12.00-13.50	8C	4	270 U	11	26	858	444 U	677	
AI-SD-615-09	06/27/89	N	14.00-15.50	8C	4	270 U	4	27	587	444 U	756	
AI-SD-615-10	06/27/89	N	16.00-17.50	8C	2	63 U	7	48 U	553	258 U	655	
AI-SD-616-01	06/27/89	N	0.00-0.08	6A	2	63 U	5	48 U	293	258 U	240 U	
AI-SD-616-02	06/27/89	N	0.08-1.50	6A	2	63 U	7	48 U	370	263	535	

NOTES: 1) Predicted Concentrations are in mg/Kg.

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4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Concentrations Predicted From XRF Readings						
						Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-616-03	06/27/89	N	2.00-2.50	6E	2	64	2 U	48 U	410	258 U	240 U	
AI-SD-616-04	06/27/89	N	4.00-5.50	6E	2	63 U	2	48 U	578	258 U	357	
AI-SD-616-05	06/27/89	N	6.00-7.50	6E	2	63 U	4	48 U	599	258 U	373	
AI-SD-616-06	06/27/89	N	8.00-9.50	6E	2	63 U	10	48 U	419	258 U	240 U	
AI-SD-616-07	06/27/89	N	10.00-11.50	6E	2	63 U	2	48 U	479	258 U	311	
AI-SD-616-08	06/27/89	N	15.00-16.50	6E	2	406	5	48 U	365	258 U	240 U	
AI-SD-616-09	06/27/89	N	18.50-20.00	2	4	405	8	17	987	444 U	649	
AI-SD-616-10	06/27/89	N	20.00-11.50	2	4	662	7	13	1909	481	679	
AI-SD-616-11	06/27/89	N	21.50-23.00	2	4	449	3	17	806	536	635	
AI-SD-616-12A	06/27/89	N	23.00-24.30	2	4	557	7	17	931	522	554	
AI-SD-616-12B	06/27/89	N	24.30-24.50	4	4	270 U	12	27	3061	444 U	2525	
AI-SD-616-13	06/27/89	N	24.50-26.00	8A	4	270 U	21	28	1582	444 U	3795	
AI-SD-616-14	06/27/89	N	26.00-27.00	8A	2	63 U	6	48 U	359	344	652	
AI-SD-617-01	06/28/89	N	0.00-0.08	6A	2	63 U	6	48 U	249 U	258 U	240 U	
AI-SD-617-02	06/28/89	N	0.08-1.50	6A	4	270 U	5	28	715	444 U	1084	
AI-SD-617-03	06/28/89	N	2.00-3.50	6A	2	63 U	5	48 U	526	337	655	
AI-SD-617-04	06/28/89	N	4.00-5.50	6A	2	63 U	8	48 U	333	258 U	240 U	
AI-SD-617-05	06/28/89	N	6.00-7.50	6A	2	63 U	2 U	48 U	249 U	258 U	240 U	
AI-SD-617-06	06/28/89	N	10.00-11.50	8B	2	63 U	7	48 U	249 U	258 U	240 U	
AI-SD-617-07	06/28/89	N	12.00-13.00	8C	2	63 U	2 U	48 U	339	258 U	240 U	
AI-SD-617-08	06/28/89	N	14.00-15.50	8C	2	63 U	4	48 U	269	258 U	240 U	
AI-SD-618-01	06/26/89	N	0.00-0.08	6A	2	63 U	7	48 U	309	306	373	
AI-SD-618-02	06/26/89	N	0.08-1.50	6A	2	157	2 U	48 U	610	284	505	
AI-SD-618-03	06/26/89	N	2.00-3.50	2	2	207	10	48 U	268	274	307	
AI-SD-618-04	06/26/89	N	4.00-5.50	2	2	151	3	48 U	249 U	258 U	240 U	
AI-SD-618-05	06/26/89	N	6.00-7.50	4	2	120	2 U	48 U	373	363	396	
AI-SD-618-06	06/26/89	N	8.00-9.50	4	2	197	7	48 U	435	368	628	
AI-SD-618-07	06/26/89	N	10.00-11.50	4	4	270 U	9	31	556	477	2201	
AI-SD-618-08	06/26/89	N	12.00-13.50	4	4	689	10	20	1271	514	2823	
AI-SD-618-09	06/26/89	N	14.00-15.50	8A	4	270 U	2 U	27	22140	444 U	781	
AI-SD-618-10	06/26/89	N	16.00-17.50	8B	2	63 U	4	48 U	442	258 U	301	
AI-SD-618-11	06/26/89	N	18.00-18.40	8C	2	94	4	48 U	728	258 U	482	
AI-SD-618-13	06/26/89	N	2.00-4.50	2	2	303	3	48 U	318	258 U	352	
AI-SD-619-01	06/27/89	N	0.00-0.08	6A	2	63 U	3	48 U	249 U	258 U	240 U	
AI-SD-619-02	06/27/89	N	0.08-1.50	6A	2	63 U	2	48 U	249 U	258 U	262	
AI-SD-619-03A	06/27/89	N	2.00-3.00	6A	2	63 U	3	48 U	471	288	389	
AI-SD-619-03B	06/27/89	N	3.00-3.50	2	2	364	3	48 U	611	432	522	
AI-SD-619-04	06/27/89	N	4.00-5.50	2	2	256	8	48 U	270	430	471	
AI-SD-619-05	06/27/89	N	6.00-7.50	2	2	393	10	48 U	249 U	537	660	
AI-SD-619-06	06/27/89	N	8.00-9.50	8A	4	270 U	6	30	3085	444 U	1499	
AI-SD-619-07	06/27/89	N	10.00-11.50	8B	4	270 U	12	28	1282	444 U	973	
AI-SD-619-08	06/27/89	N	12.00-13.50	8C	4	270 U	5	28	734	444 U	742	

NOTES: 1) Predicted Concentrations are in mg/Kg.

2) Material Codes are defined as: "1" = exposed tailings, "2" = covered tailings, "3" = manganese flue dust, "4" = alluvium/tailings, "5" = railroad ballast, "6" = transported fill, "7" = native soils (surface), "8" = native soils (subsurface), "9" = granitic bedrock.

3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

03/01/90

Revision level: FINAL

Concentrations Predicted From XRF Readings

Station	Date	Sample Type	Sample Interval	Material Code	Model	Arsenic	Cadmium (4)	Chromium	Copper	Lead	Zinc	Comments
AI-SD-619-11	06/27/89	N	2.50-7.00	2	2	188	6	48 U	329	400	457	
AI-SD-620-01	06/26/89	N	0.00-0.08	6A	4	270 U	7	27	679	444 U	1073	
AI-SD-620-02	06/26/89	N	0.08-1.50	6A	2	63 U	5	48 U	426	348	523	
AI-SD-620-04	06/26/89	N	4.00-5.50	6C	2	324	7	48 U	890	348	652	
AI-SD-620-05	06/26/89	N	6.00-7.50	4	4	270 U	5	27	581	444 U	866	
AI-SD-620-06	06/26/89	N	8.00-9.50	4	2	63 U	2	48 U	727	258 U	625	
AI-SD-620-07	06/26/89	N	10.00-11.50	4	2	63 U	4	48 U	330	258 U	240 U	
AI-SD-620-09	06/26/89	N	14.00-15.00	8B	2	63 U	2	48 U	675	392	546	
AI-SD-620-10A	06/26/89	N	16.00-16.40	8C	2	63 U	7	48 U	774	258 U	541	
AI-SD-620-10B	06/26/89	N	16.40-17.00	8C	4	270 U	6	27	1044	444 U	1514	
AI-SD-620-10C	06/26/89	N	17.00-17.50	8C	2	63 U	2	48 U	249 U	258 U	240 U	
AI-SD-620-11	06/26/89	N	18.00-19.50	8C	2	63 U	11	48 U	406	327	669	
AI-SD-620-12	06/26/89	N	20.00-21.50	8C	2	63 U	12	48 U	268	285	575	
AI-SD-622-01	06/26/89	N	0.00-0.08	6A	4	270 U	5	33	957	641	1752	
AI-SD-622-02	06/26/89	N	0.08-1.50	6A	4	270 U	7	27	1647	516	1814	
AI-SD-622-03	06/26/89	N	2.00-3.50	6C	4	270 U	11	30	1885	581	2027	
AI-SD-622-04	06/26/89	N	4.00-5.50	4	4	270 U	2 U	69	1003	1919	1506	
AI-SD-622-05A	06/26/89	N	6.00-6.80	4	4	270 U	12	34	1901	818	2850	
AI-SD-622-05B	06/26/89	N	6.80-7.50	2	4	310	5	25	750	693	1073	
AI-SD-622-06	06/26/89	N	8.00-9.50	8B	4	270 U	14	30	802	444 U	1245	
AI-SD-622-07	06/26/89	N	10.00-11.50	8C	4	270 U	13	29	1043	444 U	1218	
AI-SD-622-08	06/26/89	N	12.00-13.50	8C	2	63 U	4	48 U	494	260	593	
AI-SD-622-09A	06/26/89	N	14.00-15.40	8C	2	63 U	4	48 U	401	334	498	
AI-SD-622-09B	06/26/89	N	15.40-15.50	8C	4	270 U	15	30	1858	444 U	2683	
AI-SD-622-10A	06/26/89	N	16.00-16.70	8C	2	63 U	6	48 U	335	258 U	240 U	
AI-SD-622-10B	06/26/89	N	16.70-17.50	8C	4	270 U	14	28	1245	444 U	1730	

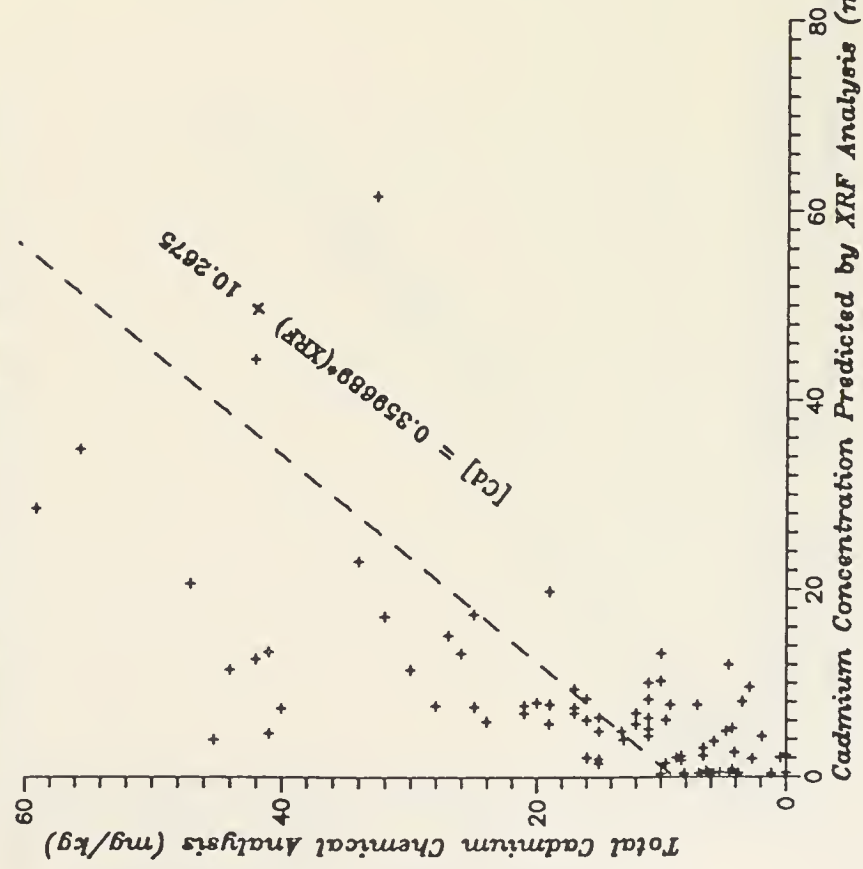
NOTES: 1) Predicted Concentrations are in mg/Kg.

2) Material Codes are defined as: "1" = exposed tailings, "2" = covered tailings, "3" = manganese flue dust, "4" = alluvium/tailings, "5" = railroad ballast, "6" = transported fill, "7" = native soils (surface), "8" = native soils (subsurface), "9" = granitic bedrock.

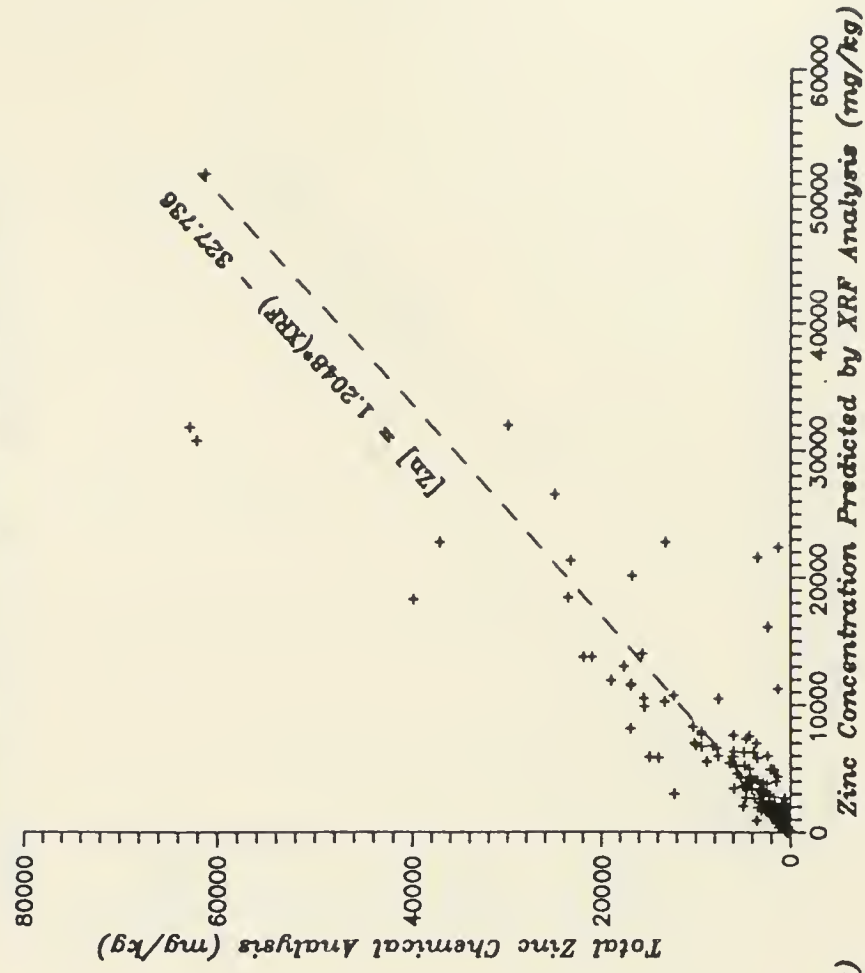
3) A "U" indicates that the metal concentration was below detection. The value given is the estimated detection limit for the instrument.

4) All cadmium concentrations were predicted from model 3.

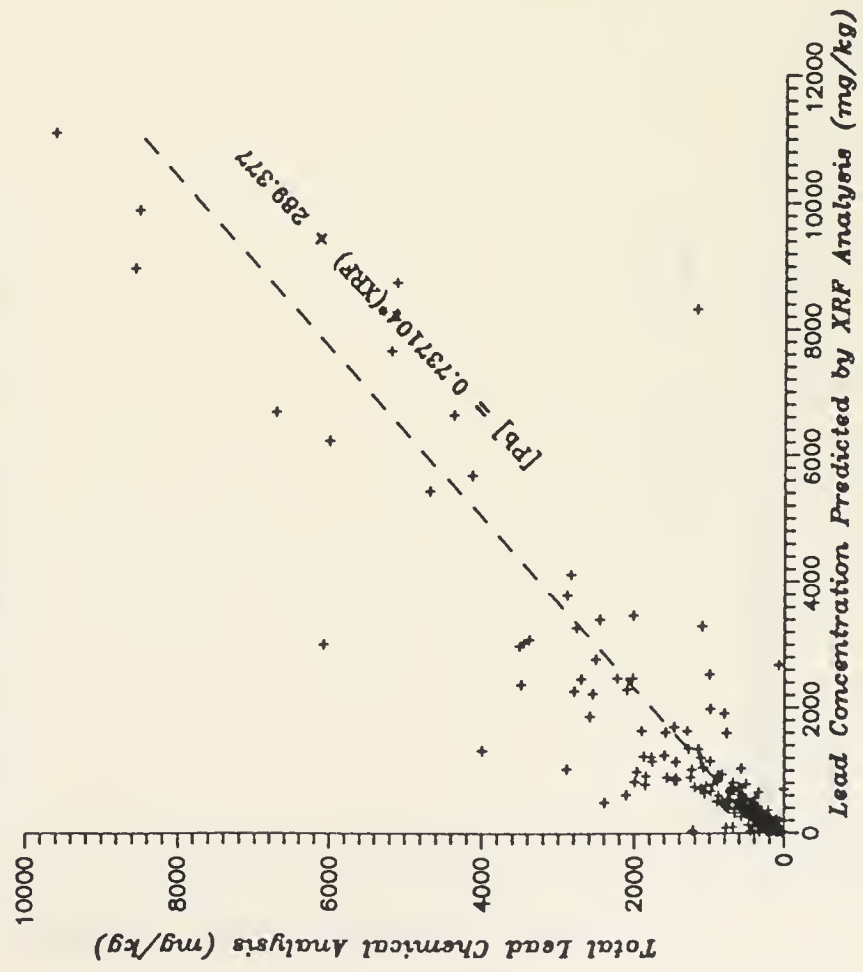
Comparison of Analytical Methods for Cadmium



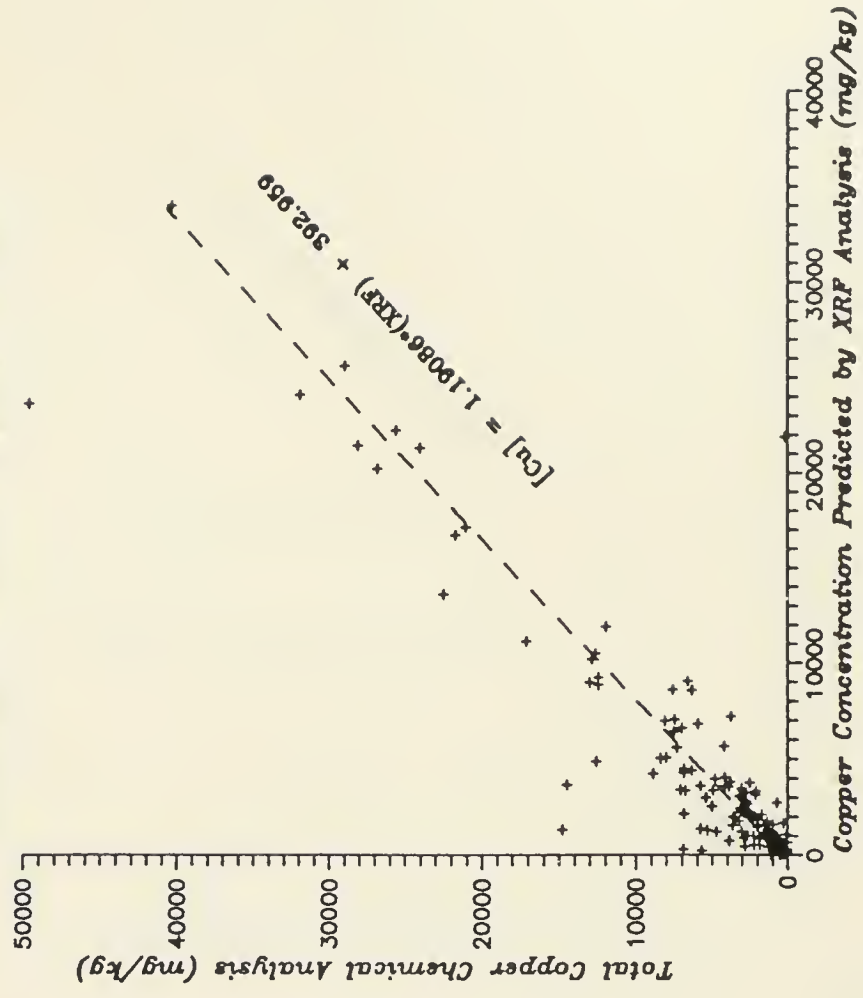
Comparison of Analytical Methods for Zinc



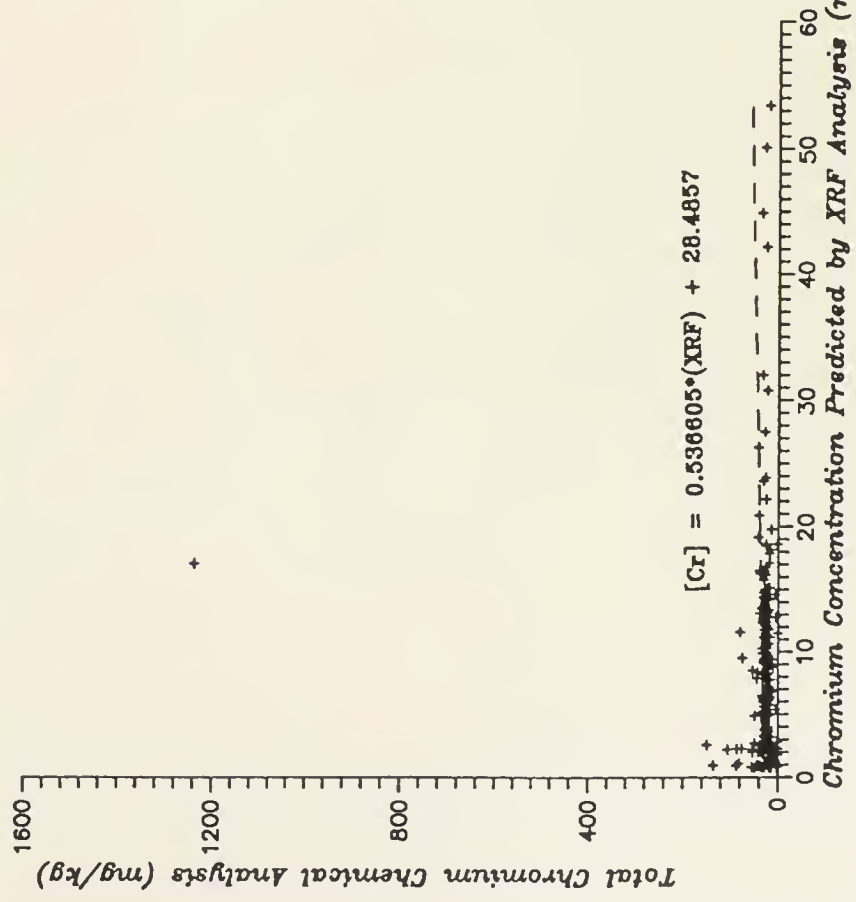
Comparison of Analytical Methods for Lead



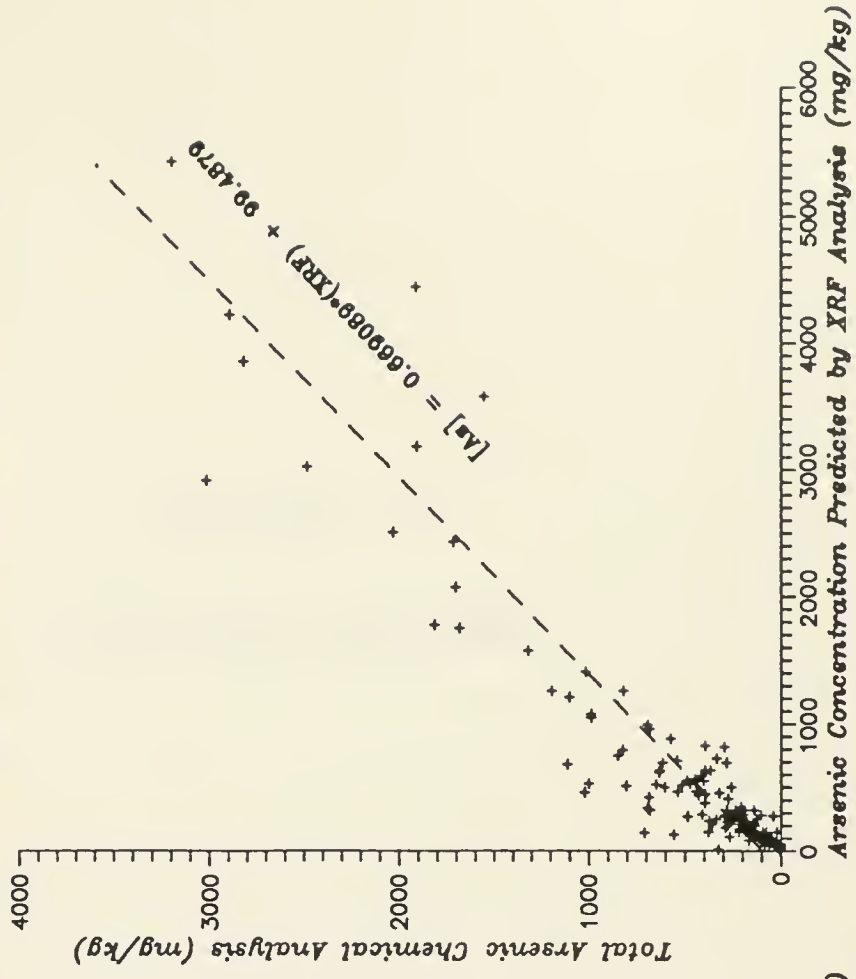
Comparison of Analytical Methods for Copper



Comparison of Analytical Methods for Chromium



Comparison of Analytical Methods for Arsenic



APPENDIX C-6

Total Metals Data Base

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-100-01	N	06/13/89	0808	4	8-93656	MHN551	5890	3.2 BNJ	452.0 D	127.0	0.9 B	8.40
AI-SD-100-02	N	06/13/89	0813	4	8-93673	MHN567	5680	16.4 NOJ	465.0	157.0	0.3 B	6.80 DJ
AI-SD-100-03	N	06/13/89	0817	4	8-86697	MHT986	4400	17.3 NJ	529.0	144.0 D	0.9 B	7.30 DJ
AI-SD-100-04	N	06/13/89	0827	88	8-86698	MHT987	3860	5.2 BNJ	82.7 NJ	122.0	0.4 U	6.40
AI-SD-100-05	N	06/13/89	0855	88	8-93695	MHN588	4940	3.7 UNUJ	54.3 D	146.0	0.4 B	7.40
AI-SD-101-01	N	06/13/89	0855	4	8-93632	MHN529	4360	5.1 BNJ	325.0	157.0	0.2 B	7.60
AI-SD-101-02	N	06/13/89	0902	4	8-87495	MHT936	8930 D	10.5 BNJ	554.0	314.0	0.5 B	4.90 D
AI-SD-101-03	N	06/13/89	0912	4	8-87476	MHT918	7620	7.9 BNJ	513.0	279.0	0.8 B	4.70
AI-SD-102-01	N	06/13/89	0924	4	8-87478	MHT920	4570	8.9 BNJ	276.0	174.0	0.5 U	0.48 U
AI-SD-102-02	N	06/13/89	0935	4	8-87474	MHT916	13200	5.9 BNJ	376.0	140.0	1.0 B	2.60
AI-SD-103-01	N	06/13/89	0945	5	8-87475	MHT917	8070	3.3 BNJ	37.6	125.0	0.6 B	0.42 U
AI-SD-104-01	N	06/13/89	0958	4	8-93665	MHN560	11400	5.7 BNJ	271.0 D	172.0	1.1 B	4.00
AI-SD-104-02	N	06/13/89	1009	4	8-93676	MHN570	15500	19.8 NOJ	501.0	244.0	0.7 B	19.80 DJ
AI-SD-104-02	BFS	06/13/89	1012		8-93677	MHN571	11400	27.2 NOJ	38.6	72.6	44.3	49.20 DJ
AI-SD-104-03	N	06/13/89	1025	8A	8-93668	MHN563	25400	7.4 BNDJ	104.0	239.0	0.9 B	7.90 DJ
AI-SD-105-01	N	06/13/89	1040	6A	8-93667	MHN562	10800	4.8 BNDJ	46.1	157.0	0.2 U	0.41 UDJ
AI-SD-107-01	N	06/13/89	1215	6A	8-93666	MHN561	11000	5.9 BNDJ	61.7	210.0	0.2 U	0.39 UDJ
AI-SD-108-01	N	06/13/89	1228	4	8-93688	MHN582	7140	10.7 BNJ	323.0 D	176.0	0.3 U	0.64 U
AI-SD-108-02	N	06/13/89	1235	4	8-93687	MHN581	9030	11.0 BNJ	277.0 D	138.0	1.0 B	61.50
AI-SD-109-02	N	06/13/89	1317	4	8-93681	MHN575	4800	5.3 BNDJ	153.0	114.0	0.2 U	0.46 UDJ
AI-SD-109-03	N	06/13/89	1324	8A	8-93689	MHN583	11800	4.4 UNUJ	288.0 D	84.0	2.5	4.00
AI-SD-109-04	N	06/13/89	1330	8B	8-93672	MHN566	5900	15.2 NOJ	320.0	87.9	0.8 B	4.90 DJ
AI-SD-110-02	N	06/13/89	1400	6A	8-93674	MHN568	7500	8.0 BNDJ	103.0	133.0	0.2 U	1.90 DJ
AI-SD-111-01	N	06/13/89	1420	6A, 6C	8-93682	MHN576	10100	9.9 BNDJ	156.0	209.0	0.3 B	34.80 DJ
AI-SD-112-01	N	06/13/89	1430	4	8-93680	MHN574	10100	5.4 BNDJ	89.1	149.0	0.2 U	6.10 DJ
AI-SD-112-03	N	06/13/89	1510	4	8-93685	MHN579	9220	7.5 BNDJ	451.0	157.0	0.2 U	1.90 DJ
AI-SD-112-05	N	06/13/89	1530	2	8-93660	MHN555	2060	17.0 NJ	2500.0 D	315.0	0.4 U	23.00
AI-SD-112-07	N	06/13/89	1600	2	8-93686	MHN580	7100	22.7 NOJ	713.0	93.7	0.4 B	11.50 DJ
AI-SD-113-01	N	06/13/89	1615	1	8-93658	MHN553	4560	4.4 BNJ	53.7 D	101.0	0.4 U	0.42 B
AI-SD-114-01	N	06/13/89	1625	1	8-93671	MHN565	459	29.5 NOJ	1580.0	279.0	0.2 U	17.30 DJ
AI-SD-114-01	R	06/13/89	1628	1	8-93675	MHN569	434	20.3 NOJ	1590.0	207.0	0.2 U	17.20 DJ
AI-SD-115-01	N	06/14/89	0745	6A, 6C	8-93684	MHN578	4930	5.9 BNDJ	236.0	86.7	0.2 U	5.10 DJ
AI-SD-115-06	N	06/14/89	0835	2	8-93683	MHN577	17400	22.5 NOJ	752.0	445.0	1.0 B	9.60 DJ

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

DISSOLVED
HEXAVALENT
CHROMIUM

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	ug/L	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
A1-S0-100-01	N	06/13/89	0808	39900	4.50		4.5	2140.0	16100.0	853.0 S	3300.0	1910.0
A1-S0-100-02	N	06/13/89	0813	3940	2.70		5.3	2830.0 D	21000.0	2780.0 NDJ	2800.0	7690.0 D
A1-S0-100-03	N	06/13/89	0817	1500	0.93 U		5.4	4270.0	21300.0	6240.0 0	2140.0	13300.0 DJ
A1-S0-100-04	N	06/13/89	0827	1420	1.00 B		8.0	1320.0	10600.0	1610.0 EJ	2610.0	5370.0
A1-S0-100-05	N	06/13/89	0855	2180	6.50		4.4	548.0	16600.0	941.0	2780.0	1630.0
A1-S0-101-01	N	06/13/89	0855	25100	5.10 NJ		4.6	3080.0	15300.0	157.0	2530.0	2830.0
A1-S0-101-02	N	06/13/89	0902	10900 DJ	8.70 0J		6.5	2130.0	20500.0	321.0	3840.0	1400.0 DJ
A1-S0-101-03	N	06/13/89	0912	2320	2.20 8		6.5	2030.0	21100.0	6700.0 0	3220.0	10100.0
A1-S0-102-01	N	06/13/89	0924	8080	6.30		5.1	695.0	49400.0	519.0 D	2380.0	244.0
A1-S0-102-02	N	06/13/89	0935	2050	12.40		6.3	3130.0	23800.0	359.0 D	3960.0	399.0
A1-S0-103-01	N	06/13/89	0945	3220	5.70		8.0	177.0	13000.0	43.8 D	4000.0	782.0
A1-S0-104-01	N	06/13/89	0958	35700	8.40		6.3	4400.0	24400.0	1160.0 S	6180.0	2270.0
A1-S0-104-02	N	06/13/89	1009	11800	9.50		9.6	5610.0 0	41100.0	5680.0 NDJ	5890.0	14800.0 D
A1-S0-104-02	BFS	06/13/89	1012	1400	58.30		51.0	94.6 D	1240.0	105.0 NDJ	642.0 B	186.0 D
A1-S0-104-03	N	06/13/89	1025	34200	20.90		14.4	575.0 0	32900.0	1340.0 NOJ	10900.0	4320.0 D
A1-S0-105-01	N	06/13/89	1040	4170	10.70		11.6	222.0 D	24400.0	203.0 NDJ	6560.0	1010.0 D
A1-S0-107-01	N	06/13/89	1215	5630	9.40		18.1	68.7 D	28200.0	48.8 NDJ	9170.0	1960.0 D
A1-S0-108-01	N	06/13/89	1228	1700	13.50		12.4	561.0	66700.0	693.0	3430.0	772.0
A1-S0-108-02	N	06/13/89	1235	1460	13.70		16.4	5070.0	69900.0	502.0	2820.0	291.0
A1-S0-109-02	N	06/13/89	1317	898 8	7.00		8.0	620.0 0	35200.0	163.0 NDJ	2280.0	116.0 D
A1-S0-109-03	N	06/13/89	1324	1800	18.50		5.0	2130.0	35700.0	135.0	2110.0	164.0
A1-S0-109-04	N	06/13/89	1330	2300	12.40		5.3	2030.0 0	35800.0	652.0 NOJ	1880.0	2480.0 D
A1-S0-110-02	N	06/13/89	1400	8010	8.40		7.4	350.0 0	22600.0	1720.0 NOJ	3690.0	3830.0 D
A1-S0-111-01	N	06/13/89	1420	20200	23.60		8.6	1360.0 0	28300.0	747.0 NOJ	4380.0	2830.0 D
A1-S0-112-01	N	06/13/89	1430	8080	12.90		7.0	1040.0 0	28000.0	110.0 NDJ	4850.0	749.0 D
A1-S0-112-03	N	06/13/89	1510	3930	9.30		5.1	586.0 0	35400.0	258.0 NDJ	3410.0	324.0 D
A1-S0-112-05	N	06/13/89	1530	304 B	1.90 8		2.2	16700.0	17800.0	790.0	537.0 8	99.6
A1-S0-112-07	N	06/13/89	1600	924 B	4.90		3.7	6820.0 D	22900.0	3280.0 NDJ	1650.0	2560.0 D
A1-S0-113-01	N	06/13/89	1615	2190	3.60		6.0	127.0	9450.0	80.2	2720.0	615.0
A1-S0-114-01	N	06/13/89	1625	296 B	0.80 U		0.6	2680.0 0	9160.0	906.0 NDJ	112.0 8	125.0 D
A1-S0-114-01	R	06/13/89	1628	294 8	0.77 U		0.6	2730.0 0	8810.0	1110.0 NDJ	107.0 B	119.0 D
A1-S0-115-01	N	06/14/89	0745	1770	8.60		4.7	637.0 D	17600.0	285.0 NOJ	1870.0	2120.0 D
A1-S0-115-06	N	06/14/89	0835	5610	10.30		6.0	10200.0 0	29100.0	1640.0 NOJ	4130.0	2290.0 D

- NOTES: 1) Units are mg/kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, K8 = Kimwipe blank, 8FS = blind field standard, W8 = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SD-100-01	N	06/13/89	0808	0.24 NDJ	5.10 B	3190.0	1.4 NJ	7.00	1460.0	0.7 UNWR	25.20	2920.0
AI-SD-100-02	N	06/13/89	0813	40.50 DJ	4.80 B	2160.0	0.6 U	31.80	265.0 B	0.8 UNWR	27.80	5210.0 D
AI-SD-100-03	N	06/13/89	0817	49.90	5.00 B	1390.0	0.8 BNSJ	47.10	347.0 B	0.8 UNR	26.20	8120.0
AI-SD-100-04	N	06/13/89	0827	25.70	5.10 B	1750.0	0.4 UNWR	15.10	144.0 B	0.7 UNR	22.00	2200.0
AI-SD-100-05	N	06/13/89	0855	14.00	5.10 B	2020.0	0.7 UNUJ	8.50 NJ	205.0 B	0.7 UNR	34.70	1930.0
AI-SD-101-01	N	06/13/89	0855	0.09 U	4.80 B	2390.0	0.6 UDWJ	2.20	1820.0	0.6 UNR	20.10	1410.0
AI-SD-101-02	N	06/13/89	0902	1.10 NDJ	5.40 B	3590.0	1.7 NSJ	9.70 NJ	431.0 B	4.5 UNR	31.40	1230.0 D
AI-SD-101-03	N	06/13/89	0912	6.90	5.30 B	2850.0	3.1 BNDWJ	36.30 NJ	456.0 B	0.7 UNR	28.80	5920.0
AI-SD-102-01	N	06/13/89	0924	2.70	2.90 B	3560.0	2.4 NDJ	11.60 NJ	2900.0	0.7 UNR	31.00	1110.0
AI-SD-102-02	N	06/13/89	0935	2.00	6.50 B	3180.0	3.5 NDLJ	9.20 NJ	165.0 B	0.7 UNR	46.20	1820.0
AI-SD-103-01	N	06/13/89	0945	0.14	6.40 B	2670.0	2.7 NDLJ	0.93 BNJ	65.6 B	0.6 UNR	23.30	376.0
AI-SD-104-01	N	06/13/89	0958	0.35 NDJ	8.60 B	7500.0	1.8 NJ	6.50	2630.0	0.8 UNWR	41.90	2670.0
AI-SD-104-02	N	06/13/89	1009	67.70 DJ	8.50 B	4600.0	0.8 U	32.60	605.0 B	1.1 UNR	60.30	8260.0 D
AI-SD-104-02	8FS	06/13/89	1012	31.00 DJ	125.00	2490.0	56.0	29.00	6740.0	60.3 NJ	63.50	76.7 D
AI-SD-104-03	N	06/13/89	1025	20.60 DJ	15.70	6670.0	0.8 UNUJ	14.80	545.0 B	1.1 UNWR	58.50	3690.0 D
AI-SD-105-01	N	06/13/89	1040	2.00 DJ	6.90 B	4880.0	0.6 U	0.89 B	104.0 B	3.8 UNR	60.60	510.0 D
AI-SD-107-01	N	06/13/89	1215	0.10 UDJ	10.30	6020.0	0.6 UNUJ	2.90	95.3 B	0.8 UNWR	59.80	251.0 D
AI-SD-108-01	N	06/13/89	1228	1.90	7.60 B	2930.0	2.8 NJ	15.30 NJ	536.0 B	0.9 UNR	42.90	1180.0
AI-SD-108-02	N	06/13/89	1235	1.40	12.10	2260.0	3.1 NJ	13.20 NJ	177.0 B	0.8 UNR	45.90	5810.0
AI-SD-109-02	N	06/13/89	1317	0.84 DJ	4.50 B	2180.0	1.5 SMJ	5.40	428.0 B	0.9 UNR	29.20	408.0 D
AI-SD-109-03	N	06/13/89	1324	0.61	5.50 B	1600.0	0.8 UNUJ	2.40 BNJ	221.0 B	0.8 UNR	57.90	2980.0
AI-SD-109-04	N	06/13/89	1330	0.56 DJ	4.40 B	1380.0	0.8 U	11.60	110.0 B	1.0 UNWR	65.60	3830.0 D
AI-SD-110-02	N	06/13/89	1400	1.70 DJ	6.00 B	2670.0	0.6 U	11.50	190.0 B	0.9 UNWR	49.20	3430.0 D
AI-SD-111-01	N	06/13/89	1420	2.10 DJ	14.50	3500.0	0.6 U	7.50	377.0 B	0.9 UNR	51.80	9830.0 D
AI-SD-112-01	N	06/13/89	1430	0.12 DJ	6.40 B	3820.0	0.9 B	1.00 B	455.0 B	0.8 UNR	58.40	1490.0 D
AI-SD-112-03	N	06/13/89	1510	0.64 DJ	4.10 B	3660.0	0.7 UNUJ	7.10	507.0 B	0.9 UNR	36.40	1030.0 D
AI-SD-112-05	N	06/13/89	1530	0.44 NDJ	3.80 B	1050.0 B	2.0 NJ	74.70	99.9 B	0.7 UNWR	14.10	7680.0
AI-SD-112-07	N	06/13/89	1600	25.40 DJ	4.10 B	1300.0	0.7 U	47.40	135.0 B	0.9 UNR	28.10	5930.0 D
AI-SD-113-01	N	06/13/89	1615	0.12 NDJ	4.30 B	2150.0	0.7 BNJ	4.30	64.3 B	0.5 UNR	19.30	275.0
AI-SD-114-01	N	06/13/89	1625	16.60 DJ	1.00 U	937.0 B	1.7	114.00	132.0 B	0.8 UNR	2.90 B	4930.0 D
AI-SD-114-01	R	06/13/89	1628	3.30 DJ	0.96 U	915.0 B	1.7	117.00	132.0 B	0.8 UNWR	3.20 B	4760.0 D
AI-SD-115-01	N	06/14/89	0745	1.30 DJ	3.80 B	1510.0	0.6 U	11.40	82.2 B	0.8 UNR	41.90	1970.0 D
AI-SD-115-06	N	06/14/89	0835	20.00 DJ	6.60 B	3330.0	1.7 LJ	51.90	363.0 B	0.9 UNWR	41.20	5000.0 D

- NOTES: 1) Units are mg/kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-116-01	N	06/14/89	0855	2	8-93628	MHN525	3110	37.7 NJ	4220.0	701.0	0.4 B	44.40
AI-SD-116-01	BFS	06/14/89	0900		8-93629	MHN526	6360	9.2 BNJ	38.9	47.8	40.0	43.90
AI-SD-117-01	N	06/14/89	1155	3	8-93626	MHN524	2240	18.3 NJ	827.0	165.0	0.9 B	10.10
AI-SD-117-02	N	06/14/89	1155	3	8-87455	MHN597	1820	22.7 NJ	634.0 D	149.0	1.0 B	10.10
AI-SD-117-11	N	06/14/89	1357	3	8-87482	MHT924	1350 D	31.9 NJ	2070.0	230.0	0.2 U	10.30 D
AI-SD-119-01	N	06/14/89	1525	6A, 6C	8-87456	MHN598	4060	11.6 BNJ	324.0 D	113.0	0.9 B	0.39 U
AI-SD-119-03	N	06/14/89	1612	4, 6A, 6C	8-87452	MHN594	871	6.3 BNJ	797.0 D	259.0	0.2 U	3.10
AI-SD-120-01	N	06/15/89	1020	6A	8-87477	MHT919	9330	5.1 BNJ	93.0	2350.0	0.6 B	4.30
AI-SD-120-02	N	06/15/89	1042	6A, 6C	8-86693	MHT981	6010	4.3 BNJ	178.0	860.0 D	0.3 B	2.20 DJ
AI-SD-120-04	N	06/15/89	1055	6A	8-87468	MHT910	6030	6.3 BNJ	89.0	206.0	0.8 B	0.81 B
AI-SD-121-01	N	06/15/89	1137	4	8-93655	MHN550	14000	5.8 BNJ	203.0 D	182.0	1.0 B	7.60
AI-SD-121-02	N	06/15/89	1145	4	8-86669	MHT959	25600 D	5.1 BNJ	201.0	292.0	1.4	9.40
AI-SD-121-03	N	06/15/89	1158	4	8-87459	MHT902	16400	4.9 BNJ	242.0	392.0	0.8 B	17.10
AI-SD-121-05	N	06/15/89	1215	4	8-87497	MHT938	17300 D	17.8 NJ	530.0	310.0	1.2 B	5.90 D
AI-SD-121-07	N	06/15/89	1239	4	8-87491	MHT932	5670 D	28.7 NJ	458.0	149.0	0.5 B	11.50 D
AI-SD-121-07	BFS	06/15/89	1243		8-87492	MHT933	8560 D	3.3 UNUJ	39.0	57.6	44.1	45.40 D
AI-SD-122-01	N	06/15/89	1335	4	8-87479	MHT921	3700	5.8 BNJ	266.0	73.5	0.8 B	2.40
AI-SD-123-01	N	06/15/89	1355	4	8-93657	MHN552	5180	2.8 UNUJ	162.0 D	97.1	0.9 B	12.70
AI-SD-125-01	N	06/16/89	0815	4	8-93647	MHN543	15400	4.4 BNJ	185.0 D	243.0	1.5	7.50
AI-SD-125-01	R	06/16/89	0818	4	8-93648	MHN544	14200	6.3 BNJ	190.0 D	250.0	1.8	7.10
AI-SD-126-01	N	06/16/89	0940	4	8-93633	MHN530	9990	3.3 UNUJ	302.0	214.0	0.4 B	5.60
AI-SD-128-01	N	06/16/89	1017	4	8-93630	MHN527	6970	6.1 BNJ	201.0	115.0	0.2 U	2.10
AI-SD-129-01	N	06/16/89	1030	4	8-93631	MHN528	15600	14.1 BNJ	569.0	366.0	1.1 B	8.30
AI-SD-130-01	N	06/16/89	1042	6A	8-93699	MHN592	6830	3.8 BNJ	160.0 D	128.0	0.4 B	6.80
AI-SD-131-01	N	06/16/89	1150	4	8-93690	MHN584	5340	4.3 BNJ	135.0 D	116.0	0.3 B	13.40
AI-SD-131-01	R	06/16/89	1156	4	8-93696	MHN589	4540	3.4 UNUJ	146.0 D	104.0	0.3 B	13.60
AI-SD-132-01	N	06/16/89	1320	7	8-93635	MHN532	10900	3.9 BNJ	44.5	172.0	0.3 B	4.40
AI-SD-134-01	N	06/16/89	1425	4	8-93634	MHN531	8930	5.3 BNJ	161.0	139.0	0.2 U	0.46 U
AI-SD-134-03	N	06/16/89	1450	4	8-93636	MHN533	18400	17.3 BNJ	961.0	124.0	2.1	2.10
AI-SD-134-03	WB	06/16/89	1507		8-93691	MHN585	41 B	16.0 U	2.7 B	2.0 U	1.0 U	2.00 U
AI-SD-136-01	N	06/20/89	0940	4	8-93697	MHN590	13000	7.3 BNJ	222.0 D	290.0	0.5 B	6.30
AI-SD-136-01	BFS	06/20/89	0945		8-93698	MHN591	6010	5.1 BNJ	36.5 D	46.6	39.3	43.30
AI-SD-136-05	N	06/20/89	1025	4	8-87467	MHT909	6220	7.2 BNJ	231.0	131.0	0.5 U	5.70

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continued

DISSOLVED
HEXAVALENT
CHROMIUM
ug/L

SAMPLE TYPE SAMPLE DATE SAMPLE TIME

STATION

CALCIUM

CHROMIUM

COBALT

COPPER

IRON

LEAD

MAGNESIUM

MANGANESE

AI-SD-116-01	N	06/14/89	0855	2490	2.30 NJ	3.1	21400.0	28600.0	991.0	672.0 B	342.0
AI-SD-116-01	BFS	06/14/89	0900	1220	49.40 NJ	44.7	90.9	878.0	86.0	515.0 B	166.0
AI-SD-117-01	N	06/14/89	1155	13500	0.89 UNR	4.8	293.0	33600.0	1990.0	4890.0	158000.0
AI-SD-117-02	N	06/14/89	1155	13500	0.92 U	5.0	269.0	32100.0	1910.0	5090.0	153000.0
AI-SD-117-11	N	06/14/89	1357	579 80J	2.80 DJ	3.1	10500.0	26000.0	1220.0	469.0 B	1130.0 DJ
AI-SD-119-01	N	06/14/89	1525	18100	0.78 U	3.6	254.0	63700.0	193.0	2210.0	168000.0
AI-SD-119-03	N	06/14/89	1612	3500	0.87 B	0.7	1210.0	14100.0	420.0	640.0 B	522.0
AI-SD-120-01	N	06/15/89	1020	24200	32.00	12.2	1090.0	28700.0	397.0 0	4760.0	2800.0
AI-SD-120-02	N	06/15/89	1042	7910	18.60	7.2	923.0	16900.0	283.0 D	3260.0	2050.0 DJ
AI-SD-120-04	N	06/15/89	1055	4680	3.30	8.7	242.0	15000.0	324.0 D	3520.0	4780.0
AI-SD-121-01	N	06/15/89	1137	18300	10.50	7.8	2320.0	27300.0	274.0	6180.0	3270.0
AI-SD-121-02	N	06/15/89	1145	3670	16.40	11.9	2270.0	39500.0	547.0	8180.0	2260.0
AI-SD-121-03	N	06/15/89	1158	5130	13.10	14.0	1570.0	38100.0	1020.0 D	7200.0	4800.0
AI-SD-121-05	N	06/15/89	1215	4140 DJ	12.70 DJ	8.2	1910.0	55200.0	878.0	6200.0	1060.0 DJ
AI-SD-121-07	N	06/15/89	1239	1790 DJ	4.00 DJ	8.8	3580.0	23300.0	483.0	2680.0	1540.0 DJ
AI-SD-121-07	BFS	06/15/89	1243	1290 DJ	52.10 DJ	47.4	86.3	969.0	90.2	556.0 B	169.0 DJ
AI-SD-122-01	N	06/15/89	1335	46200	6.20	3.1	746.0	17100.0	211.0 D	2570.0	113.0
AI-SD-123-01	N	06/15/89	1355	21400	4.00	5.0	3360.0	14600.0	469.0 S	3670.0	1540.0
AI-SD-125-01	N	06/16/89	0815	43400	12.90	11.0	2010.0	28500.0	460.0 S	9140.0	2150.0
AI-SD-125-01	R	06/16/89	0818	41200	11.40	10.3	2020.0	27800.0	444.0 S	8900.0	2220.0
AI-SD-126-01	N	06/16/89	0940	4540	8.20 NJ	9.5	1150.0	24200.0	1030.0	4820.0	2710.0
AI-SD-128-01	N	06/16/89	1017	18800	11.80 NJ	5.3	362.0	43900.0	240.0	4600.0	302.0
AI-SD-129-01	N	06/16/89	1030	2740	42.20 NJ	7.3	2010.0	114000.0	546.0	3260.0	724.0
AI-SD-130-01	N	06/16/89	1042	4760	10.30	5.1	576.0	20100.0	418.0	3300.0	639.0
AI-SD-131-01	N	06/16/89	1150	9140	8.30	3.2	449.0	17400.0	187.0	3280.0	376.0
AI-SD-131-01	R	06/16/89	1156	11700	6.70	3.3	443.0	15800.0	156.0	3240.0	419.0
AI-SD-132-01	N	06/16/89	1320	20000	12.30 NJ	8.2	269.0	16600.0	487.0	6300.0	1290.0
AI-SD-134-01	N	06/16/89	1425	10600	13.10 NJ	5.6	749.0	39000.0	221.0	3440.0	204.0
AI-SD-134-03	N	06/16/89	1450	33900	53.40 NJ	9.9	9030.0	73600.0	303.0	3190.0	221.0
AI-SD-134-03	WB	06/16/89	1507	97 B	4.00 B	3.0	3.1 B	62.8 B	1.0 U	25.0 U	3.5 B
AI-SD-136-01	N	06/20/89	0940	7160	11.50	7.1	1610.0	34600.0	463.0	4770.0	670.0
AI-SD-136-01	BFS	06/20/89	0945	1200	48.10	44.0	82.0	851.0	85.1	500.0 B	158.0
AI-SD-136-05	N	06/20/89	1025	1120 B	5.90	5.8	964.0	19500.0	326.0 D	3370.0	174.0

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3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	Vanadium	ZINC
AI-S0-116-01	N	06/14/89	0855	0.51	5.70 B	1530.0	0.7 U0J	78.90	57.8 B	0.7 UNWR	17.30	11500.0
AI-S0-116-01	BFS	06/14/89	0900	1.60	111.00	2020.0	8.1 0J	26.40	6000.0	23.3 NJ	52.90	71.8
AI-S0-117-01	N	06/14/89	1155	1.30	6.30 B	4530.0	0.7 U0WJ	66.50	2340.0	1.5 8NWJ	33.40	3560.0
AI-S0-117-02	N	06/14/89	1155	1.20	8.10 B	4000.0	0.7 UNUJ	63.70 NJ	1710.0	1.5 8NWJ	31.40	3380.0
AI-S0-117-11	N	06/14/89	1357	1.40 N0J	2.80 B	913.0 8	2.0 NJ	71.90 NJ	87.4 8	0.9 UNWR	12.70	4120.0 0
AI-S0-119-01	N	06/14/89	1525	1.10	7.20 8	2210.0	6.2 NJ	6.90 NJ	2770.0	0.6 UNR	33.50	620.0
AI-S0-119-03	N	06/14/89	1612	1.60	0.97 U	1380.0	0.6 UNWUJ	43.70 NJ	2920.0	0.6 UNWR	7.70 B	1100.0
AI-S0-120-01	N	06/15/89	1020	0.34	11.50	2850.0	2.9 N0SJ	3.70 NJ	187.0 8	0.7 UNR	35.80	1070.0
AI-S0-120-02	N	06/15/89	1042	0.10 U	6.30 B	2040.0	0.7 8NJ	7.00	119.0 B	0.8 UNR	26.70	1090.0
AI-S0-120-04	N	06/15/89	1055	1.10	6.50 8	2410.0	2.7 N0SJ	4.80 NJ	138.0 B	0.6 UNR	26.20	706.0
AI-S0-121-01	N	06/15/89	1137	0.60 N0J	11.40	5220.0	2.3 NSJ	3.40	1380.0	0.7 UNR	46.30	3910.0
AI-S0-121-02	N	06/15/89	1145	0.63 N0J	14.80	6770.0	0.8 U	5.70	545.0 8	0.8 UNWR	74.00	4140.0
AI-S0-121-03	N	06/15/89	1158	3.10	19.20	5240.0	5.6 N0LJ	10.60 NJ	726.0 B	1.0 UNWR	53.70	6700.0
AI-S0-121-05	N	06/15/89	1215	2.50 N0J	11.20	4710.0	1.7 NLJ	11.60 NJ	355.0 B	1.1 UNWR	54.10	5470.0 0
AI-S0-121-07	N	06/15/89	1239	2.00 N0J	6.40 B	2260.0	1.2 NJ	16.60 NJ	107.0 B	4.2 UNR	24.20	5990.0 0
AI-S0-121-07	BFS	06/15/89	1243	1.50 N0J	116.00	2280.0	47.5 NJ	27.60 NJ	6360.0	95.2 NSJ	57.90	73.6 0
AI-S0-122-01	N	06/15/89	1335	0.78	2.20 B	2500.0	2.5 N0LJ	7.30 NJ	1180.0	0.7 UNWR	20.30	1460.0
AI-S0-123-01	N	06/15/89	1355	1.20 N0J	7.20 B	2680.0	1.4 NSJ	13.10	1310.0	0.7 UNR	21.60	6770.0
AI-S0-125-01	N	06/16/89	0815	0.63 N0J	15.40	6660.0	1.6 NJ	6.00	5110.0	0.8 UNWR	51.70	6310.0
AI-S0-125-01	R	06/16/89	0818	0.59 N0J	14.80	6430.0	1.6 NMJ	1.90 B	5110.0	0.7 UNWR	49.60	5920.0
AI-S0-126-01	N	06/16/89	0940	0.52	8.30 B	3650.0	0.6 U0WJ	6.30	143.0 B	0.6 UNWR	39.40	2170.0
AI-S0-128-01	N	06/16/89	1017	0.59	5.90 B	4440.0	1.2 U0WJ	5.30	2740.0	0.6 UNR	41.00	1570.0
AI-S0-129-01	N	06/16/89	1030	1.20	32.20	3760.0	0.8 U0WJ	7.30	832.0 B	0.8 UNWR	62.00	3120.0
AI-S0-130-01	N	06/16/89	1042	0.30	5.80 B	2870.0	0.8 8NJ	5.10 NJ	187.0 B	0.7 UNWR	33.60	2090.0
AI-S0-131-01	N	06/16/89	1150	0.34	5.60 B	2950.0	0.7 UNWUJ	4.40 NJ	845.0 B	0.7 UNR	30.30	5960.0
AI-S0-131-01	R	06/16/89	1156	0.31	4.90 8	2680.0	0.6 UNWUJ	3.40 NJ	788.0 B	0.6 UNWR	28.20	5920.0
AI-S0-132-01	N	06/16/89	1320	0.10 U	9.10	3690.0	0.7 U0WJ	2.30	130.0 B	0.7 UNR	34.40	1190.0
AI-S0-134-01	N	06/16/89	1425	1.00	5.80 B	3800.0	0.7 U0J	3.60	535.0 8	0.7 UNR	36.00	451.0
AI-S0-134-03	N	06/16/89	1450	1.60	9.90 B	1980.0	2.3 0SJ	8.00	92.4 8	0.9 UNR	97.00	988.0
AI-S0-134-03	W8	06/16/89	1507	0.20 UN	5.00 U	280.0 B	3.0 UNWUJ	4.00 U	16500.0	3.0 UWJ	3.80 B	27.9
AI-S0-136-01	N	06/20/89	0940	1.00	6.90 B	4290.0	1.5 NSJ	9.40 NJ	594.0 8	0.7 UNR	45.50	1320.0
AI-S0-136-01	8FS	06/20/89	0945	12.40	109.00	2030.0	44.4 NJ	26.10 NJ	5650.0	61.8 NR	52.00	71.2
AI-S0-136-05	N	06/20/89	1025	1.10	5.20 B	2760.0	2.7 N0LJ	13.20 NJ	105.0 B	0.7 UNR	29.90	2940.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CAIOMIUM
AI-SO-136-07	N	06/20/89	1102	8A	8-87486	MHT928	9350 0	25.4 NJ	1080.0	225.0	0.4 B	13.20 D
AI-SO-137-02	N	06/20/89	1259	4	8-86652	MHT943	22000 0	5.9 BNJ	1050.0	397.0	1.0 B	4.90
AI-SO-138-01	N	06/20/89	1340	7	8-86665	MHT955	12700 0	4.4 BNJ	68.0	183.0	0.5 B	2.20
AI-SO-138-02	N	06/20/89	1348	7	8-86676	MHT966	15900 0	6.2 BNJ	126.0 NJ	246.0	1.4	0.52 U
AI-SO-138-03	N	06/20/89	1407	7	8-86651	MHT942	11900 0	6.0 UNUJ	119.0	164.0	0.5 B	3.80
AI-SO-139-01	N	06/20/89	1445	60	8-86661	MHT951	8540 0	10.9 BNJ	226.0	231.0	0.5 B	15.10
AI-SO-140-01	N	06/21/89	0930	5	8-86678	MHT968	4500	8.0 BNJ	264.0	87.3 D	0.2 U	0.41 UOJ
AI-SO-140-01	R	06/21/89	0939	5	8-86680	MHT970	4280	11.7 BNJ	279.0	99.3 D	0.2 U	0.44 UDJ
AI-SO-141-01	N	06/21/89	0955	6A	8-87454	MHN596	4700	3.4 UNUJ	5.9 D	61.2	0.2 U	0.43 U
AI-SO-141-02	N	06/21/89	1004	6A	8-86653	MHT944	4290 D	3.2 UNJ	29.3	68.9	0.2 U	0.40 U
AI-SO-141-03	N	06/21/89	1015	6D	8-87451	MHN593	5120	16.6 NJ	78.1 D	218.0	0.3 B	12.00
AI-SO-142-01	N	06/21/89	1100	5	8-86654	MHT945	5910 D	8.7 BNJ	213.0	110.0	0.3 B	0.38 U
AI-SO-143-03	N	06/21/89	1128	2	8-86670	MHT960	4550 D	70.8 NJ	516.0	100.0	0.2 U	5.20
AI-SO-144-01	N	06/21/89	1400	6A	8-86667	MHT957	10300 0	3.2 UNUJ	46.5	151.0	0.3 B	1.50
AI-SO-144-01	BFS	06/21/89	1410		8-86668	MHT958	10100 D	14.3 NJ	40.2	66.3	43.1	44.20
AI-SO-144-02	N	06/21/89	1412	6A	8-87453	MHN595	3430	4.7 BNJ	180.0 D	99.0	0.2 U	1.90
AI-SO-144-03	N	06/21/89	1425	2	8-87480	MHT922	832 0	24.3 NJ	424.0	101.0	0.2 U	0.40 UO
AI-SO-144-06	N	06/21/89	1457	2	8-87483	MHT925	366 D	49.7 NJ	524.0	49.8	0.2 U	0.39 UD
AI-SO-144-09	N	06/21/89	1523	2	8-87500	MHT941	438 0	27.1 NJ	173.0	95.3	0.2 U	6.80 D
AI-SO-144-10	N	06/21/89	1535	4	8-87499	MHT940	873 D	70.8 NJ	1780.0	194.0	0.2 U	8.10 D
AI-SO-145-01	N	06/22/89	0745	4	8-93637	MHN534	22900	5.1 UNUJ	144.0	390.0	0.5 B	7.70
AI-SO-145-02	N	06/22/89	0756	4	8-87463	MHT906	16300	5.1 BNJ	255.0	331.0	0.9 B	7.80
AI-SO-145-05	N	06/22/89	0827	4	8-87469	MHT911	24800	10.7 BNJ	697.0	378.0	1.2 B	1.50 B
AI-SO-145-05	BFS	06/22/89	0833		8-87470	MHT912	5330	5.7 BNJ	37.5	44.8	42.9	46.60
AI-SO-145-06	N	06/22/89	0839	8A	8-87485	MHT927	24100 0	22.0 NJ	1210.0	421.0	1.0 B	7.70 D
AI-SO-146-01	N	06/22/89	0910	6A	8-86663	MHT953	6060 D	7.3 BNJ	192.0	120.0	0.3 B	1.80
AI-SO-146-01	R	06/22/89	0914	6A	8-86664	MHT954	5210 0	8.0 BNJ	164.0	116.0	0.2 B	2.30
AI-SO-147-01	N	06/22/89	0920	6C, 6D	8-93644	MHN540	6200	3.3 UNUJ	119.0	150.0	0.2 U	13.20
AI-SO-147-02	N	06/22/89	0933	2	8-87481	MHT923	2390 D	6.9 BNJ	151.0	151.0	0.2 U	2.10 D
AI-SO-147-04	N	06/22/89	1006	4	8-87494	MHT935	2900 0	16.7 NJ	148.0	162.0	0.3 B	20.70 D
AI-SO-147-05	N	06/22/89	1020	8A	8-87498	MHT939	10500 0	11.2 BNJ	163.0	191.0	0.6 B	6.10 D
AI-SO-148-01	N	06/22/89	1105	4	8-87458	MHT901	17400	7.1 BNJ	267.0 D	501.0	0.9 B	28.60
AI-SO-149-01	N	06/22/89	1315	5	8-87473	MHT915	7720	2.6 UNR	285.0	140.0	0.4 U	0.41 U

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

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4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continued

DISSOLVED
HEXAVALENT
CHROMIUM

SAMPLE TYPE

SAMPLE DATE

SAMPLE TIME

CALCIUM

CHROMIUM

ug/L

COBALT

COPPER

IRON

LEAD

MAGNESIUM

MANGANESE

AI-SO-136-07	N	06/20/89	1102	2700 DJ	7.00 DJ	7.0	8870.0	36300.0	887.0	3300.0	462.0 DJ
AI-SO-137-02	N	06/20/89	1259	9300	19.80	10.4	1490.0	52800.0	380.0	7780.0	737.0
AI-SO-138-01	N	06/20/89	1340	11300	16.50	9.6	255.0	20700.0	139.0	5720.0	1140.0
AI-SO-138-02	N	06/20/89	1348	4610	22.20	11.7	484.0	25400.0	135.0 EJ	6430.0	959.0
AI-SO-138-03	N	06/20/89	1407	3760	10.50	7.3	931.0	24800.0	148.0	4060.0	534.0
AI-SO-139-01	N	06/20/89	1445	6340	9.00	6.1	2540.0	22100.0	614.0	3390.0	641.0
AI-SO-140-01	N	06/21/89	0930	5500	5.20	3.3	629.0	49600.0	434.0 D	891.0 B	70.2 DJ
AI-SO-140-01	R	06/21/89	0939	5390	4.70	3.0	700.0	46200.0	439.0 0	879.0 B	71.1 DJ
AI-SO-141-01	N	06/21/89	0955	4150	5.60	3.6	41.1	8100.0	18.3	2010.0	176.0
AI-SO-141-02	N	06/21/89	1004	8170	8.80	5.9	94.6	14400.0	96.4 S	2120.0	263.0
AI-SO-141-03	N	06/21/89	1015	17800	9.40	4.5	863.0	21700.0	2680.0	2560.0	4340.0
AI-SO-142-01	N	06/21/89	1100	1330	6.70	3.5	1100.0	27200.0	157.0	2020.0	248.0
AI-SO-143-03	N	06/21/89	1128	2390	5.10	2.1	3350.0	37300.0	1360.0	1140.0	93.5
AI-SO-144-01	N	06/21/89	1400	28100	30.80	7.6	260.0	16700.0	169.0	6740.0	362.0
AI-SO-144-01	BFS	06/21/89	1410	1270	52.50	46.2	80.9	1060.0	82.9	563.0 B	168.0
AI-SO-144-02	N	06/21/89	1412	10900	5.90	2.7	517.0	15300.0	351.0	1520.0	315.0
AI-SO-144-03	N	06/21/89	1425	1740 DJ	1.40 BDJ	1.1	450.0	22100.0	417.0	286.0 B	58.4 DJ
AI-SO-144-06	N	06/21/89	1457	368 BDJ	0.80 BDJ	0.6	209.0	26900.0	444.0	50.8 B	8.7 DJ
AI-SO-144-09	N	06/21/89	1523	95 BDJ	0.76 UDJ	0.6	203.0	890.0	935.0	9.8 B	11.8 DJ
AI-SO-144-10	N	06/21/89	1535	560 BDJ	0.91 UDJ	1.3	7040.0	24000.0	3040.0	46.7 B	17.5 DJ
AI-SO-145-01	N	06/22/89	0745	27600	50.10 NJ	15.1	783.0	33800.0	810.0	9720.0	4110.0
AI-SO-145-02	N	06/22/89	0756	10800	8.10	10.2	1130.0	27600.0	671.0 0	5990.0	11000.0
AI-SO-145-05	N	06/22/89	0827	5690	15.10	10.1	2960.0	56100.0	513.0 D	7700.0	2040.0
AI-SO-145-05	BFS	06/22/89	0833	1320	50.70	48.1	89.5	864.0	90.4 D	548.0 B	173.0
AI-SO-145-06	N	06/22/89	0839	4490 DJ	17.10 DJ	12.3	6420.0	43500.0	1060.0	6870.0	743.0 DJ
AI-SO-146-01	N	06/22/89	0910	4140	13.30	4.8	595.0	31300.0	177.0	2200.0	147.0
AI-SO-146-01	R	06/22/89	0914	4380	9.80	4.1	562.0	27100.0	224.0	2190.0	149.0
AI-SO-147-01	N	06/22/89	0920	7280	7.70 NJ	4.4	1000.0	13700.0	206.0	2510.0	456.0
AI-SO-147-02	N	06/22/89	0933	1060 DJ	3.30 DJ	2.0	342.0	11700.0	318.0	888.0 B	106.0 DJ
AI-SO-147-04	N	06/22/89	1006	546 BDJ	2.50 DJ	1.7	743.0	10400.0	772.0	1210.0	648.0 DJ
AI-SO-147-05	N	06/22/89	1020	1520 DJ	7.80 DJ	4.3	1780.0	17600.0	276.0	2620.0	282.0 DJ
AI-SO-148-01	N	06/22/89	1105	15500	14.90	12.7	1300.0	32400.0	793.0	11500.0	4660.0
AI-SO-149-01	N	06/22/89	1315	6400	7.80	13.1	800.0	27700.0	27.8 0	4260.0	1300.0

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4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SD-136-07	N	06/20/89	1102	0.85 NDJ	7.60 8	2690.0	2.1 NJ	37.40 NJ	121.0 B	1.0 UNR	34.50	3630.0 D
AI-SD-137-02	N	06/20/89	1259	1.00 NDJ	10.40 B	7010.0	1.0 B	8.10	441.0 B	0.9 UNWR	106.00	2320.0
AI-SD-138-01	N	06/20/89	1340	0.30 NDJ	8.80 B	3920.0	0.9 UWUJ	1.80 B	397.0 B	0.9 UNR	50.90	617.0
AI-SD-138-02	N	06/20/89	1348	0.15	10.20 8	5090.0	0.6 UNWR	2.00 B	208.0 8	0.8 UNR	56.60	491.0
AI-SD-138-03	N	06/20/89	1407	0.69 NDJ	5.80 8	3240.0	1.9 BS	3.00 B	200.0 B	1.2 UNWR	43.20	715.0
AI-SD-139-01	N	06/20/89	1445	1.30 NDJ	7.40 8	2420.0	0.8 BS	10.70	371.0 B	0.7 UNWR	33.10	3670.0
AI-SD-140-01	N	06/21/89	0930	0.69	2.80 8	3020.0	4.3 NLJ	11.10	626.0 8	0.9 UNWR	22.60	317.0
AI-SD-140-01	R	06/21/89	0939	0.90	3.10 8	3180.0	2.7 NLJ	13.40	698.0 B	0.9 UNWR	20.60	320.0
AI-SD-141-01	N	06/21/89	0955	0.11 U	2.90 B	1540.0	1.7 NMJ	0.86 UN	197.0 B	0.6 UNWR	20.60	93.2
AI-SD-141-02	N	06/21/89	1004	0.33 NDJ	4.00 8	1640.0	0.6 U	0.94 B	342.0 8	0.6 UNWR	37.20	129.0
AI-SD-141-03	N	06/21/89	1015	0.61	9.20	1280.0	0.7 BNWJ	90.70 NJ	1060.0	0.6 UNWR	31.50	22400.0
AI-SD-142-01	N	06/21/89	1100	0.62 NDJ	2.80 B	1930.0	0.6 UWUJ	4.10	136.0 B	0.6 UNR	32.40	844.0
AI-SD-143-03	N	06/21/89	1128	0.51 NDJ	2.80 8	1730.0	0.6 U	45.70	201.0 B	0.6 UNWR	24.50	2650.0
AI-SD-144-01	N	06/21/89	1400	0.10 UNDUJ	6.90 8	3170.0	0.6 UWUJ	0.95 8	287.0 B	0.6 UNR	42.60	466.0
AI-SD-144-01	8FS	06/21/89	1410	0.66 NDJ	115.00	2250.0	42.8	27.40	6050.0	73.2 NJ	57.90	63.7
AI-SD-144-02	N	06/21/89	1412	0.59	2.80 B	1440.0	1.0 NLJ	14.00 NJ	398.0 8	0.6 UNWR	15.00	670.0
AI-SD-144-03	N	06/21/89	1425	0.73 NDJ	1.00 B	933.0 B	1.1 NJ	40.60 NJ	827.0 8	0.8 UNR	6.40 8	401.0 D
AI-SD-144-06	N	06/21/89	1457	1.10 NDJ	0.97 U	712.0 B	1.2 NJ	32.10 NJ	1370.0	0.8 UNR	5.90 8	254.0 D
AI-SD-144-09	N	06/21/89	1523	2.10 NDJ	1.10 8	318.0 8	0.9 BNJ	55.30 NJ	39.0 8	0.8 UNR	0.78 B	2210.0 D
AI-SD-144-10	N	06/21/89	1535	0.10 UND	2.30 8	895.0 8	2.1 NJ	134.00 NJ	167.0 B	1.9 BNJ	6.30 8	2410.0 D
AI-SD-145-01	N	06/22/89	0745	1.10	22.20	6970.0	0.9 UDWJ	3.70	713.0 B	0.9 UNR	86.90	1510.0
AI-SD-145-02	N	06/22/89	0756	1.10	15.30	4510.0	3.9 NDLJ	7.90 NJ	383.0 B	0.8 UNR	47.50	2150.0
AI-SD-145-05	N	06/22/89	0827	3.00	11.90 8	6280.0	3.9 NDLJ	12.90 NJ	238.0 B	0.9 UNR	65.30	1960.0
AI-SD-145-05	BFS	06/22/89	0833	1.00	118.00	2100.0	41.0 NDJ	28.60 NJ	6270.0	67.4 NJ	55.40	71.3
AI-SD-145-06	N	06/22/89	0839	2.10 NDJ	12.90	5890.0	3.5 NSJ	22.30 NJ	252.0 8	1.2 UNR	63.90	1990.0 D
AI-SD-146-01	N	06/22/89	0910	0.38 NDJ	3.60 8	2260.0	0.6 B	3.00	438.0 B	0.6 UNR	47.00	628.0
AI-SD-146-01	R	06/22/89	0914	0.36 NDJ	3.10 8	2330.0	0.6 BWJ	3.50	442.0 8	0.6 UNR	34.30	794.0
AI-SD-147-01	N	06/22/89	0920	0.44	6.40 8	2380.0	0.6 UDWJ	6.00	159.0 8	0.6 UNR	24.10	3400.0
AI-SD-147-02	N	06/22/89	0933	0.72 NDJ	3.50 B	1170.0	1.6 NSJ	9.90 NJ	113.0 B	0.8 UNR	12.40	855.0 D
AI-SD-147-04	N	06/22/89	1006	0.35 NDJ	3.20 B	1030.0	1.0 BNSJ	41.80 NJ	71.5 B	4.1 UNR	15.60	7560.0 D
AI-SD-147-05	N	06/22/89	1020	1.30 NDJ	5.70 B	2740.0	1.7 NSJ	3.50 NJ	78.7 8	1.1 UNWR	31.60	1870.0 D
AI-SD-148-01	N	06/22/89	1105	0.72	17.40	7900.0	0.9 UNUJ	5.30 NJ	4060.0	0.9 UNWR	59.50	11300.0
AI-SD-149-01	N	06/22/89	1315	0.28	5.30 8	2710.0	1.8 NDLJ	1.70 BNJ	202.0 B	0.7 UNR	33.00	133.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, K8 = Kimwipe blank, BFS = blind field standard, WB = water blank, B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-150-01	N	06/22/89	1405	3	8-87461	MHT904	3710	18.2 NJ	695.0	1000.0	1.4	19.40
AI-SD-150-02	N	06/22/89	1420	3	8-93643	MHN539	4670	23.5 NJ	636.0	1520.0	1.3	14.10
AI-SD-151-01	N	06/22/89	1535	5	8-93639	MHN536	2070	10.9 BNJ	617.0	122.0	0.2 U	0.38 U
AI-SD-151-02	N	06/22/89	1550	5	8-87457	MHN599	4490	10.2 BNJ	149.0 D	148.0	0.8 B	8.00
AI-SD-152-02	N	08/04/89	1300	2	8-87460	MHT903	670	17.7 NJ	2310.0	668.0	0.5 U	2.80
AI-SD-152-03	N	08/04/89	1320	2	8-93638	MHN535	975	36.7 NJ	3180.0	512.0	0.3 B	22.00
AI-SD-152-03	WB	08/04/89	1334		8-87472	MHT914	22 U	13.0 U	2.0 U	2.0 U	2.0 U	2.00 U
AI-SD-152-03	BB	08/04/89	1335		8-87471	MHT913	22 U	13.0 U	2.3 B	2.0 B	2.0 U	2.00 U
AI-SD-170-01	N	08/03/89	0730	7	8-86673	MHT963	9530	3.4 UNUJ	61.3	145.0	0.4 B	3.10
AI-SD-170-02	N	08/03/89	0740	8B	8-86672	MHT962	10500	3.2 UNUJ	18.5 NJ	125.0	0.4 B	0.40 U
AI-SD-170-03	N	08/03/89	0753	8B	8-86677	MHT967	6590	4.6 BNJ	11.3	81.9 D	0.2 B	0.38 UDJ
AI-SD-171-03	N	08/03/89	0912	6A	8-86674	MHT964	8480	6.3 BNJ	182.0	153.0	0.4 B	5.10
AI-SD-171-04	N	08/03/89	0925	6A	8-86688	MHT977	12100	4.5 BNJ	57.7	191.0 D	0.4 B	1.90 DJ
AI-SD-171-08	N	08/03/89	0948	6A	8-93653	MHN548	6580	2.8 UNUJ	23.1 0	104.0	0.9 B	3.30
AI-SD-171-08	BFS	08/03/89	0951		8-93654	MHN549	8510	7.8 BNJ	47.3 D	64.5	53.9	59.00
AI-SD-171-08	WB	08/03/89	0956		8-93642	MHN538	46 B	16.0 U	2.0 UNUJ	2.0 U	1.0 U	2.00 U
AI-SD-171-08	BB	08/03/89	1000		8-93640	MHN537	41 B	16.0 U	2.0 UNUJ	2.0 U	1.0 U	2.00 U
AI-SD-173-01	N	08/03/89	1048	4	8-87487	MHT929	16600	12.2 BNJ	258.0	224.0	1.2 B	9.00 D
AI-SD-173-01	R	08/03/89	1055	4	8-87488	MHT930	17300	11.0 BNJ	260.0	234.0	1.0 B	9.20 D
AI-SD-173-02	N	08/03/89	1102	4	8-93693	MHN587	16800	9.7 BNJ	274.0 D	324.0	1.1 B	8.80
AI-SD-173-03	N	08/03/89	1130	4	8-93669	MHN564	3170	94.6 NDJ	498.0	73.1	0.2 U	2.50 DJ
AI-SD-173-04	N	08/03/89	1138	4	8-87465	MHT908	1170	34.3 NJ	818.0	19.8 B	0.4 U	0.43 U
AI-SD-174-01	N	08/03/89	1149	7	8-93646	MHN542	4730	2.5 UNUJ	149.0 D	191.0	0.8 B	5.60
AI-SD-174-01	N	08/03/89	1152	7	8-86683	MHT973	4770	3.3 UNUJ	133.0	226.0 D	0.4 B	6.10 DJ
AI-SD-175-02	N	08/03/89	1308	7	8-93645	MHN541	3280	5.4 BNJ	116.0 D	66.7	0.5 U	17.80
AI-SD-175-04	N	08/03/89	1329	7	8-93651	MHN547	5050	2.8 UNUJ	25.1 D	114.0	0.4 B	2.10
AI-SD-175-04	WB	08/03/89	1338		8-93678	MHN572	26 U	16.0 U	2.0 U	2.0 U	1.0 U	2.00 U
AI-SD-175-04	BB	08/03/89	1348		8-93679	MHN573	162 B	16.0 U	2.0 U	2.0 U	1.0 U	2.00 U
AI-SD-176-01	BFS	08/03/89	1353		8-86690	MHT979	4050	9.5 BNJ	35.3	32.9 B0	20.7	21.30 DJ
AI-SD-176-01	N	08/03/89	1359	5	8-93664	MHN559	3630	8.6 BNJ	545.0 D	146.0	0.4 U	0.41 U
AI-SD-176-01	R	08/03/89	1401		8-86689	MHT978	4340	9.4 BNJ	502.0	138.0 D	0.3 B	0.40 UDJ
AI-SD-177-01	N	08/03/89	1415	4	8-87464	MHT907	20100	7.8 BNJ	288.0	249.0	1.1	0.41 U
AI-SD-177-01	R	08/03/89	1421	4	8-87462	MHT905	20300	8.0 BNJ	286.0	256.0	0.5 B	0.41 U

NOTES: 1) Units are mg/Kg unless otherwise noted.

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3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits. Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM
ug/LSAMPLE
TYPESAMPLE
DATESAMPLE
TIME

CALCIUM

STATION

CHROMIUM

COBALT

COPPER

IRON

LEAD

MAGNESIUM

MANGANESE

AI-SD-150-01	N	06/22/89	1405	13200	1.10 U	19.7	660.0	37100.0	3300.0 D	4270.0	231000.0
AI-SD-150-02	N	06/22/89	1420	24800	1.00 UNR	5.9	104.0	34200.0	3480.0	8500.0	192000.0
AI-SD-151-01	N	06/22/89	1535	1150	2.80 NJ	2.4	1040.0	46300.0	822.0	990.0	1540.0
AI-SD-151-02	N	06/22/89	1550	3570	0.81 U	6.2	2370.0	20800.0	3800.0	1970.0	14900.0
AI-SD-152-02	N	08/04/89	1300	239 B	1.30 U	1.1	3660.0	11000.0	805.0 D	85.9 B	48.0
AI-SD-152-03	N	08/04/89	1320	1800	1.30 BNJ	3.3	22200.0	29200.0	859.0	99.3 B	62.5
AI-SD-152-03	WB	08/04/89	1334	71 B	5.00 U	4.0	6.0 U	71.5 80J	1.0 UDJ	37.0 U	2.0 U
AI-SD-152-03	BB	08/04/89	1335	173 B	5.00 U	4.1	6.0 U	20.9 80J	1.0 UDJ	47.4 B	2.0 U
AI-SD-170-01	N	08/03/89	0730	11700	15.00	7.6	811.0	19200.0	154.0	3520.0	487.0
AI-SD-170-02	N	08/03/89	0740	3030	12.80	8.3	165.0	21400.0	52.0	4540.0	578.0
AI-SD-170-03	N	08/03/89	0753	2550	14.30	6.9	90.8	23300.0	55.9 D	3550.0	531.0 DJ
AI-SD-171-03	N	08/03/89	0912	3790	8.50	7.0	1590.0	22500.0	2480.0	3380.0	1130.0
AI-SD-171-04	N	08/03/89	0925	6050	14.40	9.1	404.0	19300.0	569.0 0	4350.0	769.0 DJ
AI-SD-171-08	N	08/03/89	0948	3200	5.20	9.6	173.0	14400.0	729.0	4270.0	1920.0
AI-SD-171-08	BFS	08/03/89	0951	1640	65.60	60.2	113.0	1140.0	120.0 S	731.0 B	219.0
AI-SD-171-08	WB	08/03/89	0956	80 B	4.00 U	3.0	3.1 B	63.3 80J	1.9 B	25.0 U	6.4 B
AI-SD-171-08	BB	08/03/89	1000	214 B	4.10 B	3.0	3.0 U	73.7 80J	2.0 B	25.0 U	4.2 B
AI-SD-173-01	N	08/03/89	1048	57900 DJ	12.10 DJ	7.4	3420.0	50800.0	339.0	7590.0	442.0 DJ
AI-SD-173-01	R	08/03/89	1055	37300 DJ	11.80 DJ	8.2	2870.0	52200.0	330.0	8410.0	385.0 DJ
AI-SD-173-02	N	08/03/89	1102	4980	11.80	7.4	3560.0	61900.0	615.0	6370.0	315.0
AI-SD-173-03	N	08/03/89	1130	944 B	2.30	3.1	3740.0 0	25300.0	349.0 NDJ	1330.0	160.0 D
AI-SD-173-04	N	08/03/89	1138	534 B	1.10 U	2.8	8560.0	26900.0	241.0 D	441.0 B	126.0
AI-SD-174-01	N	08/03/89	1149	3030	4.30	6.8	660.0	12800.0	787.0 S	2650.0	3670.0
AI-SD-174-01	N	08/03/89	1152	2590	6.70	5.6	540.0	15200.0	830.0 D	2360.0	4530.0 DJ
AI-SD-175-02	N	08/03/89	1308	1100 B	2.50	1.9	533.0	13000.0	519.0	1970.0	1280.0
AI-SD-175-04	N	08/03/89	1329	13800	3.20	5.9	89.2	11100.0	573.0 S	3380.0	2020.0
AI-SD-175-04	WB	08/03/89	1338	46 B	4.00 U	3.0	3.0 U	46.6 B	2.0 U	25.0 U	2.0 U
AI-SD-175-04	BB	08/03/89	1348	97 B	4.00 U	3.0	3.0 U	373.0	2.0 UM	25.0 U	2.4 B
AI-SD-176-01	BFS	08/03/89	1353	632 B	25.20	22.1	40.4	501.0	46.5 D	277.0 B	80.1 DJ
AI-SD-176-01	N	08/03/89	1359	2370	3.70	2.4	832.0	35300.0	427.0 S	1400.0	1020.0
AI-SD-176-01	R	08/03/89	1401	2350	5.70	2.4	809.0	36000.0	681.0 D	1610.0	1310.0 DJ
AI-SD-177-01	N	08/03/89	1415	18000	16.20	8.4	2120.0	37200.0	387.0 D	7810.0	916.0
AI-SD-177-01	R	08/03/89	1421	20400	16.60	8.4	2140.0	37800.0	390.0 D	8000.0	978.0

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4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-150-01	N	06/22/89	1405	1.50	20.80	6930.0	1.8 NDSJ	107.00 NJ	8000.0	6.4 NSJ	59.20	5460.0
AI-SO-150-02	N	06/22/89	1420	2.80	6.70 B	4350.0	0.7 UOWJ	40.90	1200.0 B	9.0 NSJ	44.00	10700.0
AI-SO-151-01	N	06/22/89	1535	3.10	1.60 B	4020.0	2.4 OJ	26.10	725.0 B	0.6 UNR	35.10	1050.0
AI-SO-151-02	N	06/22/89	1550	37.80	4.70 B	1420.0	0.6 UNUJ	37.80 NJ	243.0 B	0.6 UNWR	29.50	7610.0
AI-SO-152-02	N	08/04/89	1300	5.50	3.60 B	1170.0 B	2.9 NDSJ	55.30 NJ	122.0 B	0.7 UNWR	7.00 8	1430.0
AI-SO-152-03	N	08/04/89	1320	0.51	3.90 B	1040.0 B	0.8 UOJ	69.50	48.5 B	0.8 UNR	13.20	7880.0
AI-SO-152-03	WB	08/04/89	1334	0.20 UJ	5.00 U	391.0 U	5.9 UNUJ	4.00 U	22000.0	3.0 UNWUJ	4.00 U	13.2 B
AI-SO-152-03	BB	08/04/89	1335	0.20 UJ	5.00 U	434.0 B	10.4 BNWJ	4.00 U	28600.0	3.0 UNWUJ	4.00 U	74.9
AI-SO-170-01	N	08/03/89	0730	0.18 D	7.10 8	3460.0	4.2 LJ	1.50 B	116.0 B	0.8 UOWJ	40.90	505.0
AI-SO-170-02	N	08/03/89	0740	0.10 UD	9.30	3630.0	1.3 WJ	0.80 U	86.2 B	0.8 UOWJ	51.20	136.0
AI-SO-170-03	N	08/03/89	0753	0.08 U	6.60 8	2780.0	1.0 BN LJ	0.75 U	104.0 B	0.8 UNR	68.00	85.5
AI-SO-171-03	N	08/03/89	0912	80.40 D	7.00 8	2370.0	3.6 S	28.20	148.0 B	0.9 UOWJ	35.40	1530.0
AI-SO-171-04	N	08/03/89	0925	20.70	11.80	3360.0	2.1 NSJ	6.20	139.0 B	0.9 UNR	41.60	527.0
AI-SO-171-08	N	08/03/89	0948	0.15 NDJ	7.30 8	2270.0	0.6 BN LJ	3.10	157.0 B	0.6 UNR	28.90	1970.0
AI-SO-171-08	BFS	08/03/89	0951	13.20 NDJ	149.00	2790.0	61.4 NJ	35.90	8130.0	109.0 NSJ	71.80	93.1
AI-SO-171-08	WB	08/03/89	0956	0.20 UJ	5.00 U	77.0 U	3.0 UNWUJ	4.00 U	337.0 8	3.0 U	3.00 U	24.6
AI-SO-171-08	BB	08/03/89	1000	0.20 UJ	6.70 8	77.0 U	3.0 UNWUJ	4.00 U	525.0 8	3.0 U	3.00 U	50.2
AI-SO-173-01	N	08/03/89	1048	0.77 NDJ	8.00 B	7280.0	1.2 BN SJ	3.10 NJ	1250.0 B	1.1 UNWR	51.70	5240.0 D
AI-SO-173-01	R	08/03/89	1055	0.97 NDJ	8.40 B	7180.0	2.2 NLJ	4.50 NJ	1190.0 B	1.1 UNWR	57.20	4100.0 D
AI-SO-173-02	N	08/03/89	1102	1.50	8.00 B	5740.0	1.3 BNJ	16.00 NJ	383.0 B	0.8 UNR	57.00	4600.0
AI-SO-173-03	N	08/03/89	1130	0.63 DJ	1.20 B	1030.0 B	0.7 B	17.40	76.5 B	0.9 UNWR	18.10	1340.0 D
AI-SO-173-04	N	08/03/89	1138	0.70	1.40 B	312.0 B	1.7 NOJ	48.20 NJ	38.9 B	0.7 UNR	8.30 8	1230.0
AI-SO-174-01	N	08/03/89	1149	0.39 NDJ	6.60 B	1580.0	1.7 NLJ	4.40	79.9 B	0.6 UNR	26.90	1440.0
AI-SO-174-01	N	08/03/89	1152	0.33	5.80 B	1410.0	0.7 BNWJ	6.60	72.4 B	0.8 UNR	35.70	1270.0
AI-SO-175-02	N	08/03/89	1308	1.40 NDJ	4.20 B	1650.0	1.6 NSJ	21.90	119.0 B	0.7 UNR	18.40	7020.0
AI-SO-175-04	N	08/03/89	1329	0.11 UNOJ	6.10 8	1670.0	1.4 NSJ	7.40	98.1 B	0.7 UNR	25.30	830.0
AI-SO-175-04	WB	08/03/89	1338	0.20 UN	5.00 U	93.1 B	4.3 BN SJ	4.00 U	343.0 B	4.0 UNWUJ	3.00 U	6.2 8DJ
AI-SO-175-04	BB	08/03/89	1348	0.40 UN	5.00 U	445.0 B	3.8 BL MJ	4.00 U	27500.0	20.0 UNWUJ	3.00 U	855.0 DJ
AI-SO-176-01	BFS	08/03/89	1353	16.20	56.00	1100.0	47.5 NSJ	12.80	2980.0	73.7 NLJ	27.80	34.2
AI-SO-176-01	N	08/03/89	1359	1.50 NDJ	2.90 B	2060.0	1.6 NJ	13.20	834.0 8	0.6 UNR	22.30	585.0
AI-SO-176-01	R	08/03/89	1401	1.20	3.00 B	2110.0	1.4 NLJ	12.90	787.0 B	0.8 UNR	26.40	665.0
AI-SO-177-01	N	08/03/89	1415	0.85	8.50	6830.0	1.9 NDSJ	4.40 NJ	1680.0	0.6 UNR	60.30	1150.0
AI-SO-177-01	R	08/03/89	1421	0.87	8.70	6890.0	2.9 NOLJ	4.20 NJ	1720.0	0.6 UNR	61.60	1140.0

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4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-178-01	N	08/03/89	1549	6A	8-86671	MHT961	4200 D	3.7 BNJ	302.0	83.6	0.3 B	7.10
AI-SD-178-01	N	08/03/89	1552	6A	8-87489	MHT931	5350 D	7.8 BNJ	126.0	113.0	0.3 B	7.30 D
AI-SD-178-01	N	08/03/89	1556	6A	8-87484	MHT926	4060 D	6.0 BNJ	116.0	90.3	0.4 B	7.40 D
AI-SD-178-04	WB	08/03/89	1645		8-93649	MHN545	22 U	13.0 U	2.0 UNWUJ	2.0 U	2.0 U	2.40 B
AI-SD-178-04	N	08/03/89	1645	6A	8-93663	MHN558	12400	6.6 BNJ	410.0 D	166.0	1.1 B	35.30
AI-SD-178-04	BB	08/03/89	1650		8-93650	MHN546	22 U	13.0 U	2.0 UNWUJ	2.0 U	2.0 U	2.00 U
AI-SD-179-01	N	08/04/89	0910	6D	8-93661	MHN556	8020	7.5 BNJ	82.9 D	525.0	0.9 B	2.00
AI-SD-179-02	N	08/04/89	0923	4	8-86681	MHT971	5380	5.2 BNJ	280.0	143.0 D	0.3 U	1.10 BDJ
AI-SD-179-02	WB	08/04/89	0923		8-87493	MHT934	172 B	16.0 U	2.5 B	2.0 U	1.0 U	2.80 B
AI-SD-179-02	BB	08/04/89	0924		8-87496	MHT937	58 B	18.0 B	3.4 B	2.0 U	1.0 U	2.00 U
AI-SD-179-03	N	08/04/89	0928	8A	8-93662	MHN557	6060	6.5 BNJ	92.8 D	151.0	0.6 U	12.10
AI-SD-180-01	N	08/04/89	0935	6D	8-86686	MHT975	25400	134.0 NJ	81.9	1720.0 D	3.8	0.56 UDJ
AI-SD-180-02	N	08/04/89	0942	4	8-86679	MHT969	13100	13.2 BNJ	282.0	222.0 D	0.7 B	12.20 DJ
AI-SD-180-03	N	08/04/89	0953	8B	8-86660	MHT950	3580 D	33.9 NJ	618.0	51.9	0.2 U	40.50
AI-SD-181-01	N	08/04/89	1012	6D	8-86694	MHT982	7280	7.5 BNJ	102.0	214.0 D	0.4 B	4.50 DJ
AI-SD-181-03	N	08/04/89	1025	8A	8-86685	MHT974	19700	11.1 BNJ	221.0	301.0 D	0.8 B	7.60 DJ
AI-SD-181-03	WB	08/04/89	1030		8-86656	MHT947	41 B	16.0 U	2.9 B	2.0 U	1.0 U	2.00 U
AI-SD-181-03	BB	08/04/89	1035		8-86655	MHT946	98 B	16.0 U	3.1 B	2.0 U	1.0 U	2.00 U
AI-SD-182-03	N	08/04/89	1104	4	8-86662	MHT952	2700 D	13.0 BNJ	207.0	112.0	0.2 U	12.80
AI-SD-182-04	N	08/04/89	1112	4	8-86682	MHT972	4590	16.8 NJ	220.0	72.7 D	0.4 B	27.90 DJ
AI-SD-182-05	N	08/04/89	1120	8A	8-86675	MHT965	15400	32.8 NJ	1410.0 NJ	313.0	1.5	11.80
AI-SD-182-05	BB	08/04/89	1125		8-86687	MHT976	51 B	16.0 U	2.0 U	2.0 U	1.0 U	2.00 U
AI-SD-182-05	WB	08/04/89	1125		8-86691	MHT984	378	16.0 U	2.0 U	2.0 U	1.0 U	2.00 U
AI-SD-184-01	N	08/04/89	1510	2	8-86658	MHT949	2160 D	19.0 NJ	996.0	625.0	0.2 U	20.40
AI-SD-185-01	N	08/04/89	1525	5	8-86666	MHT956	6660 D	9.7 BNJ	346.0	89.4	0.3 B	0.39 U
AI-SD-186-01	N	08/04/89	1600	5	8-86695	MHT983	2430	29.1 NJ	657.0	48.7 D	0.2 U	39.70 DJ
AI-SD-186-01	N	08/04/89	1607	5	8-86692	MHT980	2170	33.8 NJ	548.0	38.3 BD	0.2 U	63.10 DJ
AI-SD-187-01	N	08/11/89	1330	5	8-86696	MHT985	7870	6.6 BNJ	75.7	142.0 D	0.7 B	19.50 DJ
AI-SD-500-05	N	06/19/89	1130	4	8-94386	MHT836	5780	21.8 NJ	145.0	131.0	1.4	12.10
AI-SD-500-09	N	06/19/89	1200	8C	8-94387	MHT837	2710	5.9 UNUJ	14.0	151.0	0.4 U	6.20
AI-SD-500-11	N	07/06/89	0815	2	8-94388	MHT838	253	5.9 BNJ	293.0	151.0	0.4 U	4.00
AI-SD-500-11	WB	07/06/89	0821	2	8-93751	MHT751	50 B	27.0 U	6.9 B	3.7 B	2.0 U	4.00 U
AI-SD-500-11	BFS	07/06/89	0823	2	8-93753	MHT753	6670	9.0 B	47.8	56.4	51.4	52.00

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM
ug/LSTATION
SAMPLE TYPE
SAMPLE DATE
SAMPLE TIME

CALCIUM

CHROMIUM

COBALT

COPPER

IRON

LEAD

MAGNESIUM

MANGANESE

AI-SD-178-01	N	08/03/89	1549	5730	5.90	4.2	1210.0	17700.0	349.0	1770.0	1700.0
AI-SD-178-01	N	08/03/89	1552	5560 DJ	6.50 DJ	5.1	706.0	16100.0	311.0	2390.0	1770.0 DJ
AI-SD-178-01	N	08/03/89	1556	3840 DJ	4.80 DJ	3.7	759.0	14900.0	326.0	1900.0	1620.0 DJ
AI-SD-178-04	WB	08/03/89	1645	74 B	5.00 U	4.0	6.0 U	22.5 B	5.4 DJ	37.0 U	2.0 U
AI-SD-178-04	N	08/03/89	1645	3200	9.50	26.1	4310.0	26400.0	896.0 S	5010.0	670.0
AI-SD-178-04	BB	08/03/89	1650	311 B	5.00 U	4.0	6.0 U	29.3 B	1.4 BDJ	37.0 U	2.0 U
AI-SD-179-01	N	08/04/89	0910	24200	26.30	6.3	642.0	18800.0	1640.0	4060.0	1020.0
AI-SD-179-02	N	08/04/89	0923	948 B	6.00	3.6	303.0	24900.0	381.0 D	3070.0	166.0 DJ
AI-SD-179-02	WB	08/04/89	0923	119 B	4.00 U	3.0	3.0 U	272.0 DJ	2.0 U	60.9 B	7.4 B
AI-SD-179-02	BB	08/04/89	0924	191 B	4.00 U	3.0	21.0 B	133.0 DJ	2.6 B	25.0 U	4.6 B
AI-SD-179-03	N	08/04/89	0928	63200	2.20 B	6.4	874.0	33500.0	204.0	8050.0	3770.0
AI-SD-180-01	N	08/04/89	0935	42100	44.90	16.8	2750.0	75600.0	8330.0 0	5640.0	738.0 DJ
AI-SD-180-02	N	08/04/89	0942	2830	9.20	5.8	1740.0	23800.0	467.0 D	4830.0	645.0 DJ
AI-SD-180-03	N	08/04/89	0953	775 B	2.60	4.5	6970.0	24400.0	430.0	1280.0	202.0
AI-SD-181-01	N	08/04/89	1012	9400	12.40	7.4	600.0	24000.0	544.0 D	3570.0	1490.0 DJ
AI-SD-181-03	N	08/04/89	1025	6710	16.20	11.1	1020.0	40700.0	277.0 D	9490.0	568.0 DJ
AI-SD-181-03	WB	08/04/89	1030	91 B	4.00 U	3.0	26.9	56.8 B	2.2 BDJ	33.2 B	2.0 U
AI-SD-181-03	BB	08/04/89	1035	567 B	4.00 U	3.0	24.0 B	106.0	3.3 DJ	66.3 B	2.2 B
AI-SD-182-03	N	08/04/89	1104	1140 B	3.20	3.2	392.0	13600.0	404.0	1620.0	113.0
AI-SD-182-04	N	08/04/89	1112	990 B	3.50	2.6	2430.0	15100.0	539.0 D	2020.0	584.0 DJ
AI-SD-182-05	N	08/04/89	1120	2890	9.60	10.1	8960.0	50700.0	648.0 EJ	4860.0	955.0
AI-SD-182-05	BB	08/04/89	1125	182 B	4.00 U	3.0	3.0 U	32.8 B	2.6 BWJ	28.2 B	2.0 U
AI-SD-182-05	WB	08/04/89	1125	72 B	4.00 U	3.0	3.0 U	64.2 B	4.0 U	25.0 U	2.0 U
AI-SD-184-01	N	08/04/89	1510	2220	1.60 B	2.4	8590.0	19100.0	725.0	487.0 B	265.0
AI-SD-185-01	N	08/04/89	1525	6370	5.00	8.8	5650.0	49200.0	127.0	4130.0	564.0
AI-SD-186-01	N	08/04/89	1600	4890	2.20	8.9	12400.0	68100.0	937.0 D	1800.0	478.0 DJ
AI-SD-186-01	N	08/04/89	1607	3950	2.50	6.3	11900.0	139000.0	1210.0 D	1380.0	424.0 DJ
AI-SD-187-01	N	08/11/89	1330	11100	3.40	8.4	886.0	18800.0	1330.0 D	4860.0	8110.0 DJ
AI-SD-500-05	N	06/19/89	1130	370 B	1.00 U	2.7	1840.0	22600.0	9890.0	783.0 B	27500.0
AI-SD-500-09	N	06/19/89	1200	836 B	1.10 B	4.7	2530.0	6300.0	179.0	1510.0	3070.0
AI-SD-500-11	N	07/06/89	0815	57 B	0.79 U	1.0	180.0	3390.0	575.0	28.2 B	143.0
AI-SD-500-11	WB	07/06/89	0821	257 B	4.00 U	5.0	6.3 B	208.0 NJ	16.3	36.2 B	6.1 B
AI-SD-500-11	BFS	07/06/89	0823	1610	59.10	55.0	108.0	1040.0	112.0	689.0 B	197.0

NOTES:

1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-178-01	N	08/03/89	1549	0.79 NOJ	4.00 B	1570.0	0.6 U	10.50	125.0 B	0.6 UNWR	26.70	3680.0
AI-SO-178-01	N	08/03/89	1552	1.20 NOJ	5.00 B	1990.0	1.8 NLJ	4.10 NJ	145.0 B	0.8 UNR	25.00	3420.0
AI-SO-178-01	N	08/03/89	1556	1.00 NOJ	3.70 B	1820.0	1.1 NSJ	6.50 NJ	108.0 B	0.8 UNR	18.20	3940.0
AI-SO-178-04	WB	08/03/89	1645	0.20 UUJ	9.80 B	391.0 U	5.9 LJ	4.00 U	322.0 B	3.0 U	4.00 U	26.9
AI-SO-178-04	N	08/03/89	1645	0.66 NOJ	31.70	4120.0	1.5 NLJ	20.70	158.0 B	0.7 UNR	52.30	16100.0
AI-SO-178-04	BB	08/03/89	1650	0.20 UUJ	5.00 U	391.0 U	2.0 US	4.00 U	545.0 B	3.0 U	4.00 U	71.1
AI-SO-179-01	N	08/04/89	0910	0.72 NOJ	8.60 B	4800.0	1.1 BNJ	5.30	1390.0	0.7 UNR	25.70	1270.0
AI-SO-179-02	N	08/04/89	0923	0.89	3.10 B	3630.0	1.6 NJ	6.80	498.0 B	1.0 UNWR	29.40	958.0
AI-SO-179-02	WB	08/04/89	0923	0.20 UNJ	13.90 B	508.0 B	4.1 BNSJ	4.00 U	22000.0	4.0 UNWUJ	3.00 U	18.8 B
AI-SO-179-02	BB	08/04/89	0924	0.20 UNJ	23.40 B	551.0 B	6.2 BNWJ	4.00 U	29000.0	4.0 UNWUJ	3.00 U	91.4
AI-SO-179-03	N	08/04/89	0928	2.50 NOJ	8.00 B	2420.0	1.8 NWJ	2.10 B	457.0 B	0.9 UNR	20.50	7030.0
AI-SO-180-01	N	08/04/89	0935	0.50	75.40	1920.0	0.6 BNWJ	1.10 U	5960.0	1.0 UNWR	55.10	1660.0
AI-SO-180-02	N	08/04/89	0942	1.10	7.40 B	4180.0	1.5 NSJ	11.30	411.0 B	0.9 UNWR	41.80	4300.0
AI-SO-180-03	N	08/04/89	0953	1.20 NOJ	5.70 B	753.0 B	0.8 B	26.10	50.1 B	0.7 UNR	17.60	4120.0
AI-SO-181-01	N	08/04/89	1012	1.60	8.70 B	2540.0	0.9 BNLJ	4.10	253.0 B	0.9 UNR	39.00	1660.0
AI-SO-181-03	N	08/04/89	1025	0.96	11.60	8030.0	1.4 BNLJ	5.70	352.0 B	1.1 UNWR	67.00	2390.0
AI-SO-181-03	WB	08/04/89	1030	0.20 UUJ	27.70 B	378.0 B	3.0 U	4.00 UOJ	22000.0	3.0 UNWJ	3.00 U	119.0 OJ
AI-SO-181-03	BB	08/04/89	1035	1.60 NDJ	27.30 B	457.0 B	3.0 UNWJ	11.00 OJ	26000.0	3.0 UW	3.20 B	84.4 OJ
AI-SO-182-03	N	08/04/89	1104	1.20	3.00 B	1530.0	1.0 B	23.80	130.0 B	0.8 UNWR	22.90	4930.0
AI-SO-182-04	N	08/04/89	1112	1.20	4.30 B	1690.0	1.3 NJ	29.30	93.4 B	0.9 UNR	21.70	10500.0
AI-SO-182-05	N	08/04/89	1120	2.50	9.50 B	4050.0	3.2 NSJ	29.10	172.0 B	0.8 UNR	50.30	3450.0
AI-SO-182-05	BB	08/04/89	1125	0.20 UUJ	5.00 U	491.0 B	2.0 UNLJ	4.00 U	27800.0	4.0 UNWUJ	3.00 U	10.0 B
AI-SO-182-05	WB	08/04/89	1125	0.20 UUJ	5.00 U	494.0 B	2.0 UNWUJ	4.00 U	27600.0	8.0 UNWUJ	3.00 U	12.9 B
AI-SO-184-01	N	08/04/89	1510	13.50 NOJ	2.60 B	1770.0	0.9 BS	59.00	274.0 B	0.7 UNWR	13.60	6270.0
AI-SO-185-01	N	08/04/89	1525	1.40 NOJ	5.30 B	5150.0	3.0 S	22.40	160.0 B	0.6 UNR	43.30	394.0
AI-SO-186-01	N	08/04/89	1600	1.50	5.50 B	912.0 B	2.1 NSJ	34.40	77.1 B	1.0 BNWJ	20.70	12700.0
AI-SO-186-01	N	08/04/89	1607	2.20	5.60 B	826.0 B	1.9 NJ	32.90	76.3 B	0.8 UNWR	25.90	22800.0
AI-SO-187-01	N	08/11/89	1330	25.30	6.90 B	2280.0	0.7 BNWJ	15.70	298.0 B	0.8 UNWR	36.00	3160.0
AI-SO-500-05	N	06/19/89	1130	138.00	2.30 U	556.0 B	2.1 SJ	67.00 NJ	482.0 B	0.5 UNR	25.40	13700.0
AI-SO-500-09	N	06/19/89	1200	0.33	4.40 B	1140.0	2.1 UJ	2.00 UNUJ	66.9 B	0.4 UNR	14.40	1350.0
AI-SO-500-11	N	07/06/89	0815	6.80	1.80 U	479.0 B	0.6 BWJ	42.50 NJ	16.8 B	0.4 BNJ	3.30 B	1550.0
AI-SO-500-11	WB	07/06/89	0821	0.20 U	9.00 U	132.0 U	3.0 UWJ	9.00 U	105.0 B	2.0 U	5.00 U	28.7
AI-SO-500-11	BFS	07/06/89	0823	15.70	136.00	2500.0	66.2 LJ	33.60	7500.0	97.7 S	65.60	81.7

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4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SO-501-01	N	07/06/89	0835	6C	8-94389	MHT839	12600	12.3 NJ	3530.0 S	180.0	1.3	0.77 U
AI-SO-501-02	N	06/20/89	1610	6C	8-94390	MHT840	4280	8.0 BNJ	5420.0	173.0	0.9 8	0.70 UNR
AI-SO-501-05	N	06/20/89	1628	4	8-94391	MHT841	3990	7.9 BNJ	98.9	104.0	0.7 8	3.00 NJ
AI-SO-501-08	N	06/20/89	1646	4	8-94392	MHT842	3890	8.8 BNJ	89.6	97.1	0.9 8	2.50 NJ
AI-SO-502-04	N	06/23/89	0710	8C	8-94394	MHT843	5510	3.3 UNR	17.0	103.0	0.7 8	0.77 UNR
AI-SO-503-01	N	07/06/89	0840	4	8-94393	MHT844	5560	12.5 NJ	151.0	211.0	1.0	7.80 NJ
AI-SO-504-01	N	07/06/89	0830	4	8-94395	MHT845	3520	32.1 NJ	249.0	93.8	0.3 B	7.70 NJ
AI-SO-504-03	N	06/20/89	1130	4	8-94396	MHT846	3460	6.7 BNJ	632.0	108.0	0.6 8	2.70 NJ
AI-SO-504-05	N	06/20/89	1145	4	8-94397	MHT847	4070	24.8 NJ	9.5 U	164.0	1.3	11.10 NJ
AI-SO-504-07	N	06/20/89	1310	4	8-94398	MHT848	4180	13.9 NJ	111.0	87.4	0.7 B	5.80 NJ
AI-SO-504-09	N	06/20/89	1400	88	8-94399	MHT849	17800	4.1 UNR	38.6	226.0	0.6 B	0.97 UNR
AI-SO-505-01	N	07/06/89	1025	1	8-94400	MHT850	5800	5.0 BNJ	97.0 M	86.8	0.6 B	3.60 NJ
AI-SO-506-02	N	06/20/89	0800	4	8-94251	MHT851	7590	14.9 NJ	274.0	279.0	1.3	50.80 NJ
AI-SO-506-03A	N	06/20/89	0815	4	8-94252	MHT852	3130	46.0 NJ	3020.0	949.0	1.2 B	139.00 NJ
AI-SO-506-04A	N	06/20/89	0830	4	8-94253	MHT853	4780	33.6 NJ	3570.0 LJ	541.0	1.0 8	14.50 NJ
AI-SO-506-04B	N	06/20/89	0835	4	8-94254	MHT854	5790	67.2 NJ	3850.0	1000.0	0.8 B	24.50 NJ
AI-SO-506-07A	N	06/20/89	0850	4	8-94255	MHT855	10600	40.0 NJ	322.0	229.0	1.2 B	15.10 NJ
AI-SO-506-09A	N	06/20/89	0900	8A	8-94256	MHT856	15900	4.4 UNR	31.6 S	259.0	0.6 8	1.00 UNR
AI-SO-506-10	N	06/20/89	0915	8C	8-94257	MHT857	2850	3.7 UNJ	11.5 S	29.0 B	0.2 U	0.87 UNR
AI-SO-506-11	N	06/20/89	0935	4	8-93601	MHN501	6420	41.1 N	305.0 0	234.0	2.0	27.90 NO
AI-SO-506-11	BFS	06/20/89	0937		8-93602	MHN502	6010	15.7 N	40.6 0	44.0	36.3	39.00 NO
AI-SO-507-01	N	06/20/89	1715	4	8-94258	MHT858	10800	42.3 NJ	1260.0	418.0	0.6 8	8.60 NJ
AI-SO-507-05A	N	06/20/89	1730	2	8-94259	MHT859	796	22.1 NJ	1260.0	173.0	0.4 B	3.50 NJ
AI-SO-507-06	N	06/20/89	1745	4	8-94260	MHT860	8980	44.7 NJ	437.0	201.0	1.8	11.20
AI-SO-507-07B	N	06/20/89	1755	8A	8-94261	MHT861	30100	8.6 UNUJ	89.5	244.0	0.6 8	2.30
AI-SO-507-09	N	06/20/89	1821	88	8-94262	MHT862	4620	12.9 8NJ	148.0	66.0	0.5 U	4.70
AI-SO-507-11	N	06/20/89	1715	2	8-94273	MHT873	1160	31.2 NJ	680.0	182.0	0.4 U	16.30
AI-SO-507-11	N	07/06/89	0920	2	8-93603	MHN503	927	25.2 N	464.0 0	173.0	0.2 U	18.30 NO
AI-SO-508-02A	N	06/21/89	1542	2	8-94263	MHT863	3760	13.1 NJ	283.0	216.0	0.4 U	6.60
AI-SO-508-02A	W8	06/21/89	1543	2	8-93754	MHT754	102 B	27.0 U	2.9 B	6.8 B	2.0 U	4.00 U
AI-SO-508-02A	B8	06/21/89	1544	2	8-93755	MHT755	35 B	27.0 U	2.0 U	3.1 8	2.0 U	4.00 U
AI-SO-508-02A	BFS	06/21/89	1545	2	8-93756	MHT756	5560	10.9 B	43.6	48.5	43.5	44.30
AI-SO-509-01A	N	07/06/89	0944	4	8-93737	MHT737	7130	7.5 BNJ	924.0	304.0	1.0 8	60.80 NJ

NOTES: 1) Units are mg/kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, 8FS = blind field standard, WB = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-501-01	N	07/06/89	0835	10200	0.77 U	7.0	312.0	61500.0	278.0	11200.0	85800.0
AI-SO-501-02	N	06/20/89	1610	9270	1.80 UNR	6.8	33.4 NJ	65900.0	99.4 NJ	3020.0	149000.0
AI-SO-501-05	N	06/20/89	1628	1430	2.00 UNR	4.8	497.0 NJ	16900.0	1700.0 NJ	2020.0	9190.0
AI-SO-501-08	N	06/20/89	1646	1120	1.90 UNR	5.3	447.0 NJ	17800.0	2540.0 NJ	1880.0	9960.0
AI-SO-502-04	N	06/23/89	0710	1580	3.80 NJ	7.4	35.1 NJ	12400.0	118.0 NJ	3630.0	1870.0
AI-SO-503-01	N	07/06/89	0840	2800	1.70 UNR	6.5	653.0 NJ	21300.0	3370.0 NJ	2540.0	14900.0
AI-SO-504-01	N	07/06/89	0830	3520	1.70 UNR	5.5	969.0 NJ	26300.0	1660.0 NJ	2550.0	149000.0
AI-SO-504-03	N	06/20/89	1130	845 B	2.00 UNJ	3.4	637.0 NJ	21600.0	2300.0 NJ	1630.0	6850.0
AI-SO-504-05	N	06/20/89	1145	617 B	2.30 UNR	4.0	2180.0 NJ	29000.0	7660.0 NJ	1320.0	30700.0
AI-SO-504-07	N	06/20/89	1310	1230	2.20 UNR	5.1	428.0 NJ	18100.0	3410.0 NJ	2360.0	7940.0
AI-SO-504-09	N	06/20/89	1400	32200	13.90 NJ	10.9	63.7 NJ	26000.0	287.0 NJ	9570.0	2740.0
AI-SO-505-01	N	07/06/89	1025	22500	10.50 NJ	5.7	3980.0 NJ	22900.0	256.0 NJ	4360.0	2260.0
AI-SO-506-02	N	06/20/89	0800	2470	2.30 UNR	5.7	1230.0 NJ	24400.0	5430.0 NJ	3470.0	9100.0
AI-SO-506-03A	N	06/20/89	0815	1670	2.80 UNR	2.3	17100.0 NJ	20400.0	834.0 NJ	345.0 B	1100.0
AI-SO-506-04A	N	06/20/89	0830	3360	2.60 UNR	5.5	9210.0 NJ	24600.0	3090.0 NJ	2080.0	6540.0
AI-SO-506-04B	N	06/20/89	0835	2920	2.30 UNR	5.9	20200.0 NJ	29600.0	2270.0 NJ	1530.0	5440.0
AI-SO-506-07A	N	06/20/89	0850	7270	2.60 UNR	7.4	927.0 NJ	33900.0	11100.0 NJ	4550.0	30000.0
AI-SO-506-09A	N	06/20/89	0900	6800	14.80 NJ	9.5	78.2 NJ	33400.0	364.0 NJ	5630.0	2860.0
AI-SO-506-10	N	06/20/89	0915	1730	15.00 NJ	3.4	27.4 NJ	17100.0	134.0 NJ	1140.0	282.0
AI-SO-506-11	N	06/20/89	0935	4210	0.98 U	5.2	1640.0 N	35100.0	*****	1680.0	39900.0
AI-SO-506-11	BFS	06/20/89	0937	1120	44.50	40.7	77.8 N	803.0	92.9	476.0 B	160.0
AI-SO-507-01	N	06/20/89	1715	4800	2.00 UNR	7.2	3480.0 NJ	67400.0	4120.0 NJ	3310.0	25800.0
AI-SO-507-05A	N	06/20/89	1730	263 B	2.30 UNR	1.2	1190.0 NJ	7680.0	1250.0 NJ	415.0 B	1620.0
AI-SO-507-06	N	06/20/89	1745	3200	1.00 U	7.3	6610.0	36200.0	8980.0	2740.0	32200.0
AI-SO-507-07B	N	06/20/89	1755	75400	19.20	11.7	169.0	35300.0	862.0 S	13600.0	12900.0
AI-SO-507-09	N	06/20/89	1821	2270	4.90	6.0	811.0	14900.0	1600.0	2540.0	2440.0
AI-SO-507-11	N	06/20/89	1715	316 B	0.81 U	2.0	626.0	13900.0	2620.0	440.0 B	2310.0
AI-SO-507-11	N	07/06/89	0920	231 B	0.90 U	1.0	518.0 N	12700.0	1870.0	363.0 B	994.0
AI-SO-508-02A	N	06/21/89	1542	1410	0.87 U	3.5	1680.0	16100.0	585.0	1600.0	34400.0
AI-SO-508-02A	WB	06/21/89	1543	352 B	4.00 U	5.0	13.6 B	2770.0 NJ	8.6	103.0 B	32.8
AI-SO-508-02A	BB	06/21/89	1544	152 B	4.00 U	5.0	4.0 U	75.3 BNJ	2.3 B	35.0 U	8.9 B
AI-SO-508-02A	BFS	06/21/89	1545	1280	49.60	46.1	87.6	862.0	94.3	547.0 B	169.0
AI-SO-509-01A	N	07/06/89	0944	14000	6.20	4.9	8440.0 DJ	21700.0	695.0 NOJ	2750.0	4620.0

NOTES: 1) Units are mg/kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SD-501-01	N	07/06/89	0835	0.49	4.90 B	1730.0	0.5 BJ	1.70 UNUJ	77.1 B	2.3 NJ	36.60	728.0
AI-SD-501-02	N	06/20/89	1610	0.24	1.40 B	1750.0	0.6 UNWUJ	1.40 UNUJ	60.9 B	3.5 NJ	19.50	125.0 NJ
AI-SD-501-05	N	06/20/89	1628	19.60	3.80 B	1350.0	0.6 UNUJ	28.90 NJ	147.0 B	0.6 UNR	29.60	4110.0 NJ
AI-SD-501-08	N	06/20/89	1646	19.70	3.70 B	1300.0	0.6 UNUJ	30.40 NJ	166.0 B	0.6 UNR	32.10	4370.0 NJ
AI-SD-502-04	N	06/23/89	0710	0.08 U	6.00 B	2440.0	0.6 UNMUJ	1.50 UNUJ	93.1 B	0.6 UNR	26.50	603.0 NJ
AI-SD-503-01	N	07/06/89	0840	24.30	5.20 B	1980.0	0.5 UNUJ	34.60 NJ	276.0 B	0.5 UNR	34.50	6960.0 NJ
AI-SD-504-01	N	07/06/89	0830	2.00	1.20 U	1400.0	0.6 UNUJ	169.00 NJ	166.0 B	0.6 UNWR	19.60	4570.0 NJ
AI-SD-504-03	N	06/20/89	1130	24.30	2.20 B	1540.0	0.6 UNUJ	30.30 NJ	219.0 B	0.6 UNR	26.90	3890.0 NJ
AI-SD-504-05	N	06/20/89	1145	89.40	2.80 B	861.0 B	0.7 UNWUJ	76.90 NJ	580.0 B	0.7 UNR	26.60	14000.0 NJ
AI-SD-504-07	N	06/20/89	1310	32.40	4.80 B	1440.0	0.7 UNMUJ	51.00 NJ	160.0 B	0.7 UNR	21.80	7350.0 NJ
AI-SD-504-09	N	06/20/89	1400	1.10	11.90	5780.0	3.4 UNWUJ	2.40 BNJ	285.0 B	0.7 UNR	49.50	1550.0 NJ
AI-SD-505-01	N	07/06/89	1025	0.99	5.60 B	2020.0	0.5 UNUJ	1.70 UNUJ	429.0 B	0.5 UNR	45.00	1960.0 NJ
AI-SD-506-02	N	06/20/89	0800	29.60	7.40 B	2880.0	0.7 UNWUJ	56.70 NJ	220.0 B	0.7 UNR	31.40	18400.0 NJ
AI-SD-506-03A	N	06/20/89	0815	3.50	2.40 B	2290.0	0.8 UNUJ	63.80 NJ	80.5 B	0.8 UNR	14.50	6860.0 NJ
AI-SD-506-04A	N	06/20/89	0830	23.90	5.30 B	1900.0	0.8 UNWUJ	48.30 NJ	203.0 B	0.8 UNR	23.60	10500.0 NJ
AI-SD-506-04B	N	06/20/89	0835	16.40	5.90 B	2010.0	0.8 UNUJ	94.60 NJ	144.0 B	0.8 UNWR	24.40	11900.0 NJ
AI-SD-506-07A	N	06/20/89	0850	107.00	9.10 B	3080.0	0.8 UNWUJ	59.50 NJ	562.0 B	0.8 UNR	41.40	18200.0 NJ
AI-SD-506-09A	N	06/20/89	0900	3.30	7.40 B	3280.0	4.4 UNUJ	2.10 UNUJ	933.0 B	0.9 UNR	47.40	1090.0 NJ
AI-SD-506-10	N	06/20/89	0915	0.61	3.40 B	828.0 B	0.6 UNUJ	1.70 UNUJ	150.0 B	0.6 UNR	68.30	432.0 NJ
AI-SD-506-11	N	06/20/89	0935	88.70	4.10 B	1190.0 B	1.7 L	70.80	859.0 B	0.7 UNW	36.40	23200.0
AI-SD-506-11	8FS	06/20/89	0937	4.70	101.00	1900.0	2.6 L	24.00	5470.0	73.0 N	49.00	70.9
AI-SD-507-01	N	06/20/89	1715	7.00	5.50 B	6410.0	6.1 NLJ	171.00 NJ	604.0 B	3.1 NJ	61.60	6610.0 NJ
AI-SD-507-05A	N	06/20/89	1730	7.10	1.70 B	678.0 B	0.7 UNUJ	29.10 NJ	85.6 B	0.7 UNR	7.50 B	2030.0 NJ
AI-SD-507-06	N	06/20/89	1745	307.00	4.30 B	1750.0	0.5 BNWJ	61.60	576.0 B	2.5 UNR	39.40	21600.0
AI-SD-507-07B	N	06/20/89	1755	32.20	11.70 B	6590.0	0.6 UNWUJ	6.40	412.0 B	0.6 UNR	74.80	3590.0
AI-SD-507-09	N	06/20/89	1821	17.90	5.60 B	1580.0	0.5 UNUJ	7.40	112.0 B	0.5 UNR	31.20	2760.0
AI-SD-507-11	N	06/20/89	1715	28.60	1.80 U	847.0 B	0.9 BNJ	61.20	165.0 B	0.7 BNWJ	13.10	6220.0
AI-SD-507-11	N	07/06/89	0920	19.80	1.10 U	775.0 B	10.7 L	64.20	125.0 B	0.8 BN	14.30	6290.0
AI-SD-508-02A	N	06/21/89	1542	2.20	1.90 U	1240.0	0.5 BNJ	40.00	161.0 B	1.4 BNJ	19.20	2660.0
AI-SD-508-02A	WB	06/21/89	1543	0.20 U	9.00 U	276.0 B	3.3 B	9.00 U	593.0 B	2.0 U	5.00 U	55.8
AI-SD-508-02A	8B	06/21/89	1544	0.20 U	9.00 U	132.0 U	20.1 S	9.00 U	672.0 B	2.0 U	5.00 U	38.3
AI-SD-508-02A	8FS	06/21/89	1545	14.90	115.00	2110.0	69.4 S	27.90	6330.0	88.2 S	55.00	68.5
AI-SD-509-01A	N	07/06/89	0944	6.50 NJ	7.60 B	1940.0	0.4 UNUJ	41.40 NJ	380.0 B	0.5 BNJ	24.30	23300.0

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05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-509-01A	WB	07/06/89	0945	4	8-93757	MHT757	348	27.0 U	43.6	20.2 B	2.0 U	6.60
AI-SD-509-01A	B8	07/06/89	0946	4	8-93758	MHT758	30 U	27.0 U	2.0 U	2.0 U	2.0 U	4.00 U
AI-SD-509-01A	BFS	07/06/89	0947	4	8-93759	MHT759	7690	9.5 B	42.2	53.7	43.6	44.20
AI-SD-509-03	N	06/22/89	0705	4	8-94264	MHT864	3560	78.3 NJ	1750.0	761.0	0.5 U	270.00
AI-SD-509-04A	N	06/22/89	0710	8A	8-94265	MHT865	3060	78.5 NJ	4430.0	697.0	0.5 U	65.10
AI-SD-509-06	N	06/22/89	0730	8C	8-94266	MHT866	1950	46.6 NJ	727.0	65.8	0.5 U	13.00
AI-SD-509-09	N	07/06/89	1000	4	8-93604	MHN504	1080	97.6 NJ	2480.0 DJ	484.0	0.2 U	173.00 NDJ
AI-SD-509-09	N	07/06/89	1001	4	8-94274	MHT874	1440	115.0 NJ	3310.0	629.0	0.5 U	169.00
AI-SD-510-01A	N	06/19/89	1515	1	8-94267	MHT867	863	22.4 NJ	338.0	453.0	0.4 U	19.60
AI-SD-511-01	N	06/21/89	0815	4	8-94268	MHT868	5670	13.9 NJ	245.0	207.0	0.4 U	26.20
AI-SD-511-03	N	06/21/89	1717	4	8-94269	MHT869	13300	37.8 NJ	683.0	1330.0	1.7	89.90
AI-SD-511-04A	N	06/21/89	1725	4	8-94271	MHT871	2990	65.6 NJ	2430.0 S	587.0	0.5 8	140.00
AI-SD-511-06	N	06/21/89	1740	8A	8-94270	MHT870	14300	8.0 BNJ	42.1	202.0	0.4 U	11.70
AI-SD-511-08	N	06/21/89	1808	8C	8-94272	MHT872	7510	5.1 BNJ	6.9 8	102.0	0.4 U	0.75 U
AI-SD-513-03	N	06/22/89	1050	6C	8-94275	MHT875	5860	22.3 NJ	213.0	179.0	0.4 U	18.20
AI-SD-513-07	N	06/22/89	1137	4	8-94276	MHT876	6840	44.1 NJ	240.0	116.0	1.2 8	19.80
AI-SD-513-08	N	06/22/89	1147	8A	8-94277	MHT877	24200	9.4 BNJ	38.6	293.0	0.6 8	5.40
AI-SD-513-11	N	06/22/89	1220	2	8-94278	MHT878	2280	7.5 BNJ	11.5	20.8 B	0.4 U	11.40
AI-SD-514-01	N	06/22/89	0925	8C	8-94279	MHT879	5020	6.1 UNJ	10.3	203.0	0.5 U	10.60
AI-SD-515-01	N	06/23/89	0950	4	8-94280	MHT880	11900	7.1 BNJ	61.7	197.0	0.6 8	4.30
AI-SD-515-08	N	06/23/89	1045	8A	8-94281	MHT881	2210	88.9 NJ	2910.0	1740.0	0.8 8	105.00
AI-SD-515-09	N	06/23/89	1050	88	8-94282	MHT882	10900	6.3 BNJ	31.7	169.0	0.6 8	0.83 U
AI-SD-515-10	N	06/23/89	1125	4	8-93605	MHN505	1350	36.2 N	2900.0 D	1010.0	0.3 8	55.10 ND
AI-SD-516-01	N	06/23/89	1630	2	8-93606	MHN506	211	12.7 N	420.0 DS	72.6	0.2 U	9.00 ND
AI-SD-516-01A	N	07/06/89	1145	1	8-94283	MHT883	941	13.5 NJ	552.0 S	63.4	0.4 U	10.60
AI-SD-516-04A	N	06/22/89	1525	4	8-94284	MHT884	578	20.4 NJ	881.0	57.7	0.4 U	17.50
AI-SD-516-05A	N	06/22/89	1533	8A	8-94285	MHT885	7070	7.9 BNJ	35.2	85.3	0.5 U	4.10
AI-SD-516-06	N	06/22/89	1600	88	8-94286	MHT886	1380	6.3 UNJ	51.7	19.6 8	0.5 U	0.93 U
AI-SD-516-088	N	06/22/89	1610	4	8-94287	MHT887	17600	28.2 NJ	467.0	219.0	1.4	14.10
AI-SD-516-10	N	06/22/89	1620	2	8-94288	MHT888	581	17.6 NJ	588.0 S	78.0	0.3 U	5.70
AI-SD-516-10	R	06/22/89	1630	2	8-94289	MHT889	636	17.7 NJ	439.0 S	82.5	0.4 U	6.20
AI-SD-517-01	N	07/06/89	1400	1	8-94290	MHT890	701	15.7 NJ	249.0	81.8	0.4 U	3.10
AI-SD-517-03B	N	06/23/89	1326	8A	8-94291	MHT891	5500	5.6 BNJ	788.0 S	127.0	0.5 8	0.83 U

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	DISSOLVED HEXAVALENT CHROMIUM ug/L	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-509-01A	W8	07/06/89	0945	1560 8	4.00 U		5.0	256.0	1410.0 NJ	36.5	269.0 8	225.0
AI-SO-509-01A	88	07/06/89	0946	120 8	4.00 U		5.0	4.0 U	41.9 8NJ	1.7 8	35.0 U	2.0 U
AI-SO-509-01A	BFS	07/06/89	0947	1280	51.80		46.3	87.8	953.0	92.9	562.0 8	167.0
AI-SO-509-03	N	06/22/89	0705	2140	1.00 U		3.3	24100.0	24600.0	1030.0	727.0 8	1800.0
AI-SO-509-04A	N	06/22/89	0710	2330	1.00 U		4.4	21300.0	27000.0	924.0	919.0 8	1230.0
AI-SO-509-06	N	06/22/89	0730	652 8	1.00 U		3.3	7200.0	18700.0	745.0	819.0 8	1570.0
AI-SO-509-09	N	07/06/89	1000	1440	0.98 U		1.0	21300.0 NJ	22100.0	1850.0	295.0 8	722.0 DJ
AI-SO-509-09	N	07/06/89	1001	1910	0.96 U		3.0	22600.0	21500.0	2460.0 S	316.0 8	697.0
AI-SO-510-01A	N	06/19/89	1515	1720	0.77 U		1.1	3400.0	7560.0	1140.0 S	150.0 8	88.6
AI-SO-511-01	N	06/21/89	0815	7620	9.60		4.4	3590.0	17600.0	324.0	2460.0	5780.0
AI-SO-511-03	N	06/21/89	1717	19200	16.50		5.8	1340.0	54600.0	1320.0	2490.0	812.0
AI-SO-511-04A	N	06/21/89	1725	2460	0.89 U		1.7	13600.0	17100.0	2480.0	449.0 8	1060.0
AI-SO-511-06	N	06/21/89	1740	11100	11.80		9.2	299.0	18000.0	94.6 S	7440.0	1120.0
AI-SO-511-08	N	06/21/89	1808	2420	9.80		6.6	21.1	15300.0	9.9	3660.0	185.0
AI-SO-513-03	N	06/22/89	1050	4660	0.76 U		8.0	5040.0	61000.0	2470.0	2800.0	15700.0
AI-SO-513-07	N	06/22/89	1137	2030	1.10 U		6.2	1210.0	37400.0	8750.0	2370.0	32900.0
AI-SO-513-08	N	06/22/89	1147	35600	17.10		13.4	204.0	29500.0	706.0	9670.0	3480.0
AI-SO-513-11	N	06/22/89	1220	1370	13.40		3.6	35.8	11900.0	87.4	1080.0	185.0
AI-SO-514-01	N	06/22/89	0925	1830	3.40		7.7	30.2	10500.0	198.0	2530.0	3400.0
AI-SO-515-01	N	06/23/89	0950	12700	12.10		8.1	937.0	19300.0	147.0	6950.0	652.0
AI-SO-515-08	N	06/23/89	1045	2220	1.10 U		3.7	23600.0	31400.0	2990.0	487.0 8	15700.0
AI-SO-515-09	N	06/23/89	1050	4030	11.20		7.1	136.0	14700.0	50.3	3660.0	218.0
AI-SO-515-10	N	06/23/89	1125	1880	0.95 U		1.8	14400.0 N	22400.0	2590.0	286.0 8	13800.0 0
AI-SO-516-01	N	06/23/89	1630	155 8	0.71 U		0.5	303.0 N	3330.0	439.0	27.3 8	34.0 0
AI-SO-516-01A	N	07/06/89	1145	16100	1.60 8		1.0	520.0	4580.0	306.0	569.0 8	241.0
AI-SO-516-04A	N	06/22/89	1525	278 8	0.87 U		2.1	3830.0	13400.0	515.0	205.0 8	257.0
AI-SO-516-05A	N	06/22/89	1533	2200	11.30		9.2	996.0	15200.0	51.5	3120.0	384.0
AI-SO-516-06	N	06/22/89	1600	782 8	2.80		1.5	1140.0	4730.0	57.7 S	502.0 8	71.0
AI-SO-516-088	N	06/22/89	1610	10400	11.60		10.7	3360.0	34900.0	6640.0 LJ	6680.0	8100.0
AI-SO-516-10	N	06/22/89	1620	255 8	1.00 8		0.8	312.0	4620.0	268.0	95.0 8	30.6
AI-SO-516-10	R	06/22/89	1630	334 8	1.40 8		1.0	352.0	5400.0	265.0	105.0 8	32.1
AI-SO-517-01	N	07/06/89	1400	257 8	0.79 8		1.1	219.0	4600.0	250.0	282.0 8	43.0
AI-SO-517-038	N	06/23/89	1326	990 8	6.10		4.2	355.0	15200.0	345.0 LJ	3120.0	127.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, K8 = Kimwipe blank, 8FS = blind field standard, W8 = water blank, 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection limit, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), W = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-509-01A	WB	07/06/89	0945	0.20 U	9.00 U	193.0 B	3.9 B	9.00 U	252.0 B	2.0 U	5.00 U	2050.0
AI-SO-509-01A	BB	07/06/89	0946	0.20 U	9.00 U	132.0 U	13.6	9.00 U	587.0 B	2.0 U	5.00 U	58.7
AI-SO-509-01A	BFS	07/06/89	0947	14.90	115.00	2160.0	67.5 S	27.70	6300.0	79.4 S	56.10	67.2
AI-SO-509-03	N	06/22/89	0705	10.80	6.70 B	1570.0	1.0 BNJ	128.00	45.7 B	0.5 UNWR	20.70	51800.0
AI-SO-509-04A	N	06/22/89	0710	2.30	4.40 B	1090.0 B	1.3 NJ	85.40	82.4 B	0.7 BNJ	21.40	20100.0
AI-SO-509-06	N	06/22/89	0730	10.90	2.80 B	652.0 B	0.5 BNJ	55.70	107.0 B	0.4 UNWR	13.30	4000.0
AI-SO-509-09	N	07/06/89	1000	15.10	6.50 B	817.0 B	2.8 S	156.00	66.7 B	1.4 BNJ	16.50	49200.0
AI-SO-509-09	N	07/06/89	1001	20.20	6.90 B	1090.0 B	2.8 NLJ	173.00	37.3 B	1.1 BNWJ	17.10	47900.0
AI-SO-510-01A	N	06/19/89	1515	10.30	1.70 U	976.0	0.6 BNJ	75.80	176.0 B	0.8 BNJ	4.00 B	5580.0
AI-SO-511-01	N	06/21/89	0815	1.10	5.00 B	1910.0	0.4 UNWUJ	11.40	219.0 B	0.7 BNJ	33.30	5810.0
AI-SO-511-03	N	06/21/89	1717	9.80	12.40	2840.0	3.4 NSJ	76.70	1930.0	1.2 BNJ	39.20	30700.0
AI-SO-511-04A	N	06/21/89	1725	10.10	4.70 B	1520.0	1.0 BNJ	109.00	65.8 B	1.3 BNJ	16.90	31900.0
AI-SO-511-06	N	06/21/89	1740	0.58	11.40	4950.0	0.4 UNWJ	1.90 U	215.0 B	0.4 UNR	38.80	11600.0
AI-SO-511-08	N	06/21/89	1808	0.09 U	7.30 B	2020.0	0.4 UNWUJ	1.70 U	113.0 B	0.4 UNR	42.20	1480.0
AI-SO-513-03	N	06/22/89	1050	1.20	6.40 B	1960.0	0.4 UNWJ	91.10	150.0 B	0.4 UNR	39.70	26500.0
AI-SO-513-07	N	06/22/89	1137	144.00	10.70 B	1690.0	0.5 UNWJ	70.70	815.0 B	0.5 UNR	40.20	21300.0
AI-SO-513-08	N	06/22/89	1147	1.80	10.70 B	5840.0	0.5 UNWJ	4.00	1250.0 B	0.5 UNR	82.50	2020.0
AI-SO-513-11	N	06/22/89	1220	0.12 U	3.60 B	748.0 B	0.4 BNJ	1.90 U	67.5 B	0.4 UNR	53.90	458.0
AI-SO-514-01	N	06/22/89	0925	0.10 U	4.70 B	1730.0	0.4 UNWJ	2.00 U	59.2 B	0.4 UNR	25.00	1530.0
AI-SO-515-01	N	06/23/89	0950	0.18	8.40	4010.0	1.1 UNWJ	9.30 NJ	218.0 B	0.6 UNR	42.90	1120.0 EJ
AI-SO-515-08	N	06/23/89	1045	3.00	8.80 B	1230.0 B	1.5 NSJ	218.00 NJ	122.0 B	1.1 BNJ	25.70	31800.0 EJ
AI-SO-515-09	N	06/23/89	1050	0.11 U	4.80 B	2290.0	0.7 UNWUJ	1.90 UN	166.0 B	0.7 UNR	36.90	253.0 EJ
AI-SO-515-10	N	06/23/89	1125	6.40	1.60 B	804.0 B	1.2 S	136.00	107.0 B	0.9 BN	19.50	22000.0
AI-SO-516-01	N	06/23/89	1630	2.70	0.88 U	495.0 B	1.4 S	39.80	108.0 B	0.7 BN	1.40 B	2990.0
AI-SO-516-01A	N	07/06/89	1145	0.96	1.80 U	789.0 B	0.6 UNLJ	22.90 NJ	781.0 B	0.6 BNJ	4.00 B	2210.0 EJ
AI-SO-516-04A	N	06/22/89	1525	2.40	2.00 U	475.0 B	0.7 UNWJ	37.10 NJ	68.1 B	0.7 BNJ	3.90 B	6010.0 EJ
AI-SO-516-05A	N	06/22/89	1533	0.13 U	7.10 B	2330.0	0.8 UNWUJ	3.10 NJ	128.0 B	0.8 UNR	40.00	2070.0 EJ
AI-SO-516-06	N	06/22/89	1600	0.10 U	2.10 U	373.0 B	0.7 UNWUJ	2.10 UN	43.7 B	0.7 UNR	15.70	307.0 EJ
AI-SO-516-08B	N	06/22/89	1610	88.60	12.20	4470.0	3.6 UNWJ	46.30 NJ	238.0 B	0.7 UNWR	51.90	13700.0 EJ
AI-SO-516-10	N	06/22/89	1620	1.20	2.30 B	550.0 B	0.6 UNWJ	22.00 NJ	89.0 B	0.6 BNJ	3.00 B	1790.0 EJ
AI-SO-516-10	R	06/22/89	1630	1.30	2.80 B	598.0 B	0.6 UNWJ	25.40 NJ	123.0 B	0.6 UNR	3.10 B	1900.0 EJ
AI-SO-517-01	N	07/06/89	1400	0.68	14.40	625.0 B	0.5 UNWJ	17.10 NJ	113.0 B	0.5 UNR	4.40 B	1080.0 EJ
AI-SO-517-03B	N	06/23/89	1326	0.19	3.90 B	2950.0	3.1 UNWJ	1.90 UN	106.0 B	0.6 UNWR	30.80	257.0 EJ

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.). UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-517-05	N	06/23/89	1340	8C	8-94292	MHT892	6600	5.6 UNUJ	1420.0 S	103.0	0.5 B	1.20
AI-SD-517-08	N	06/23/89	1422	8C	8-94293	MHT893	1230	6.6 UNUJ	5.5	12.6 B	0.5 U	0.98 U
AI-SD-517-09	N	06/23/89	1410	2	8-94294	MHT894	898	16.6 NJ	553.0 S	144.0	0.4 U	1.80
AI-SD-517-09	R	06/23/89	1415	2	8-94295	MHT895	740	13.9 NJ	538.0 S	142.0	0.4 U	2.00
AI-SD-518-01	WB	07/06/89	1301	1	8-93760	MHT760	30 U	27.0 U	3.3 B	2.6 B	2.0 U	4.00 U
AI-SD-518-01	BFS	07/06/89	1303	1	8-93762	MHT762	6560	10.6 B	42.3 S	49.9	43.5	43.70
AI-SD-518-01	N	07/06/89	1310	1	8-94296	MHT896	615	9.8 BNJ	216.0	128.0	0.4 U	5.90
AI-SD-518-02	N	07/06/89	1315	2	8-94297	MHT897	450	15.8 NJ	521.0	69.9	0.4 U	5.10
AI-SD-518-03	N	07/06/89	1320	8A	8-94298	MHT898	24700	21.6 NJ	909.0	330.0	1.7	8.60
AI-SD-518-03	R	07/06/89	1325	8A	8-94299	MHT899	22400	16.3 BNJ	1090.0	260.0	1.4 B	7.60
AI-SD-518-04	N	07/06/89	1330	8A	8-94300	MHT900	18500	4.7 UNUJ	114.0 S	247.0	0.8 B	113.00 NJ
AI-SD-519-01	N	06/23/89	1159	4	8-93607	MHN507	4560	6.5 BN	466.0 D	105.0	0.2 U	5.20 ND
AI-SD-520-01	N	06/23/89	0841	4	8-93608	MHN508	5930	3.7 BN	124.0 D	1010.0	0.3 B	1.20 ND
AI-SD-520-03	N	06/23/89	0846	4	8-93727	MHT727	12800	3.4 UNUJ	11.9 S	226.0	0.2 U	0.80 UNUJ
AI-SD-520-06	N	06/23/89	0913	4	8-93728	MHT728	18700	4.2 UNUJ	21.4	223.0	0.3 U	1.00 UNUJ
AI-SD-520-08	N	06/23/89	0939	8C	8-93729	MHT729	3680	3.7 UNUJ	15.4	138.0	0.2 U	0.87 UNUJ
AI-SD-521-01	N	07/06/89	1345	1	8-93730	MHT730	476	6.0 BNJ	265.0	55.2	0.2 U	7.50 NJ
AI-SD-522-01	N	07/06/89	1215	1	8-93731	MHT731	2200	13.5 NJ	579.0	127.0	0.7 B	3.30 NJ
AI-SD-523-01	N	07/06/89	1130	1	8-93732	MHT732	6130	28.0 NJ	1320.0	743.0	0.5 B	29.40 NJ
AI-SD-524-01	N	07/06/89	1240	1	8-93733	MHT733	663	12.2 BNJ	771.0	96.6	0.2 U	4.50 NJ
AI-SD-525-01	N	07/06/89	1420	1	8-93734	MHT734	1130	11.5 BNJ	627.0	133.0	0.2 U	1.30 NJ
AI-SD-525-01	WB	07/06/89	1421	1	8-93763	MHT763	30 U	27.0 U	2.0 U	2.0 U	2.0 U	4.00 U
AI-SD-525-01	BB	07/06/89	1422	1	8-93764	MHT764	35 B	27.0 U	2.0 U	2.0 U	2.0 U	4.00 U
AI-SD-525-01	BFS	07/06/89	1423	1	8-93765	MHT765	5760	5.9 B	84.5 S	46.9	42.7	42.80
AI-SD-526-01	N	07/06/89	1250	1	8-93735	MHT735	1660	15.4 NJ	870.0	208.0	0.2 B	7.20 NJ
AI-SD-526-01	N	07/06/89	1255	1	8-93736	MHT736	2110	18.7 NJ	893.0	227.0	0.2 U	7.60 NJ
AI-SD-601-02	N	06/28/89	1615	6A	8-94351	MHT801	12100	5.1 UNR	59.7	158.0	0.5 B	0.76 U
AI-SD-601-06	N	06/28/89	1650	8C	8-94352	MHT802	5940	5.8 UNR	6.6	67.7	0.4 U	0.86 U
AI-SD-602-08	N	06/29/89	1100	6C	8-94353	MHT803	11400	26.5 UNR	333.0 S	518.0	0.8 B	3.90 U
AI-SD-603-02	N	06/28/89	1431	6A	8-94354	MHT804	9200	5.3 UNR	46.7	112.0	0.5 B	0.78 U
AI-SD-603-04A	N	06/28/89	1513	2	8-94355	MHT805	2610	5.3 UNR	183.0	29.3 B	0.4 U	0.78 U
AI-SD-603-05A	N	06/28/89	1520	8A	8-94356	MHT806	13500	57.2 NJ	2870.0	248.0	1.2 B	37.60
AI-SD-603-06	N	06/28/89	1530	8A	8-94357	MHT807	15800	6.1 UNR	14.3	138.0	0.9 B	1.30

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM
ug/L

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-517-05	N	06/23/89	1340	1510	7.80	5.4	978.0	13800.0	31.7	3250.0	126.0
AI-SO-517-08	N	06/23/89	1422	866 B	2.90	1.7	90.4	3360.0	10.8	479.0 B	27.7
AI-SO-517-09	N	06/23/89	1410	215 B	1.20 B	1.0	123.0	6020.0	269.0	292.0 B	40.9
AI-SO-517-09	R	06/23/89	1415	106 B	0.76 U	1.0	115.0	4960.0	277.0	217.0 B	37.6
AI-SO-518-01	WB	07/06/89	1301	252 B	4.00 U	5.0	10.5 B	176.0 NJ	6.5	43.0 B	11.2 B
AI-SO-518-01	BFS	07/06/89	1303	1270	50.40	45.9	88.1	897.0	93.4	545.0 B	167.0
AI-SO-518-01	N	07/06/89	1310	5950	2.20	0.9	644.0	4420.0	359.0	184.0 B	478.0
AI-SO-518-02	N	07/06/89	1315	91 B	0.81 B	1.0	177.0	5690.0	489.0	107.0 B	71.4
AI-SO-518-03	N	07/06/89	1320	13300	23.90	7.9	25600.0	26700.0	1230.0	6560.0	716.0
AI-SO-518-03	R	07/06/89	1325	17000	18.80	7.2	24400.0	23000.0	3120.0	5870.0	676.0
AI-SO-518-04	N	07/06/89	1330	34600	14.20	13.0	3650.0 OJ	28400.0	40.1 NOJ	6620.0	2530.0
AI-SO-519-01	N	06/23/89	1159	1700	7.20	3.4	805.0 N	22300.0	485.0	1820.0	390.0 0
AI-SO-520-01	N	06/23/89	0841	4780	0.79 U	11.2	96.0 N	21200.0	62.7	4230.0	23900.0 0
AI-SO-520-03	N	06/23/89	0846	4460	9.00	17.5	17.0 OJ	26500.0	8.9 NOJ	9990.0	2030.0
AI-SO-520-06	N	06/23/89	0913	7870	15.20	11.7	188.0 OJ	28700.0	36.3 NOJ	8420.0	655.0
AI-SO-520-08	N	06/23/89	0939	1890	13.40	4.3	202.0 DJ	25600.0	32.7 NOJ	1520.0	302.0
AI-SO-521-01	N	07/06/89	1345	9840	2.10 U	1.0	484.0 DJ	3300.0	246.0 NOJ	140.0 B	56.3
AI-SO-522-01	N	07/06/89	1215	1000 B	2.60	1.1	1570.0 DJ	14000.0	676.0 NOJ	519.0 B	120.0
AI-SO-523-01	N	07/06/89	1130	829 B	6.10	1.7	2990.0 DJ	38400.0	2240.0 NOJ	1720.0	648.0
AI-SO-524-01	N	07/06/89	1240	1580	2.40 U	1.2	417.0 DJ	8750.0	394.0 NOJ	204.0 B	95.0
AI-SO-525-01	N	07/06/89	1420	979 B	2.10	1.0	443.0 DJ	11900.0	712.0 NOJ	221.0 B	65.8
AI-SO-525-01	WB	07/06/89	1421	167 B	4.00 U	5.0	4.0 U	133.0 NJ	2.6 B	37.1 B	3.0 B
AI-SO-525-01	BB	07/06/89	1422	358 B	4.00 U	5.0	4.0 U	54.5 BNJ	1.4 B	35.0 U	14.2 B
AI-SO-525-01	BFS	07/06/89	1423	1250	49.00	45.4	86.3	844.0	105.0 S	529.0 B	164.0
AI-SO-526-01	N	07/06/89	1250	6090	2.10	1.3	1910.0 DJ	12700.0	708.0 NOJ	621.0 B	375.0
AI-SO-526-01	N	07/06/89	1255	6460	2.10 U	1.3	1940.0 OJ	13200.0	749.0 NOJ	676.0 B	389.0
AI-SO-601-02	N	06/28/89	1615	3260	11.20	8.8	349.0	20200.0	96.5	4740.0	600.0
AI-SO-601-06	N	06/28/89	1650	1620	9.20	4.2	84.1	13300.0	34.5	3080.0	106.0
AI-SO-602-08	N	06/29/89	1100	3970 B	7.90 B	4.9	4890.0	171000.0	634.0	333.0 B	378.0
AI-SO-603-02	N	06/28/89	1431	2040	9.10	10.7	381.0	20900.0	129.0	3500.0	1040.0
AI-SO-603-04A	N	06/28/89	1513	856 B	3.20	1.3	209.0	18800.0	133.0	1870.0	181.0
AI-SO-603-05A	N	06/28/89	1520	2200	9.90	8.8	21900.0	25800.0	499.0	3860.0	1060.0
AI-SO-603-06	N	06/28/89	1530	3160	10.00	7.6	979.0	23300.0	63.5 LJ	6490.0	494.0

NOTES: 1) Units are mg/kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.). UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-517-05	N	06/23/89	1340	0.10 U	3.70 B	2420.0	0.7 UNWUJ	1.90 UN	115.0 B	0.7 UNR	29.70	290.0 EJ
AI-SO-517-08	N	06/23/89	1422	0.10 U	2.20 U	266.0 B	0.8 UNWUJ	2.20 UN	89.2 B	0.8 UNR	11.00 B	86.0 EJ
AI-SO-517-09	N	06/23/89	1410	1.30	1.80 U	828.0 B	0.5 UNWUJ	21.10 NJ	96.8 B	0.5 UNR	9.40 B	808.0 EJ
AI-SO-517-09	R	06/23/89	1415	1.20	1.70 U	759.0 B	3.0 UNWUJ	20.00 NJ	84.1 B	0.6 UNR	6.70 B	763.0 EJ
AI-SO-518-01	WB	07/06/89	1301	0.20 U	9.00 U	132.0 U	3.0 U	9.00 U	133.0 B	2.0 U	5.00 U	24.1
AI-SO-518-01	BFS	07/06/89	1303	14.00	115.00	2140.0	67.6	27.80	6270.0	83.7 S	55.50	68.0
AI-SO-518-01	N	07/06/89	1310	0.85	1.80 B	736.0 B	2.9 UNWUJ	21.50 NJ	222.0 B	0.6 UNR	5.00 B	1590.0 EJ
AI-SO-518-02	N	07/06/89	1315	1.90	2.10 B	625.0 B	0.6 UNWUJ	25.40 NJ	116.0 B	0.6 UNR	7.80 B	1650.0 EJ
AI-SO-518-03	N	07/06/89	1320	39.80	8.00 B	4610.0	1.0 UNWUJ	27.30 NJ	230.0 B	1.0 UNR	81.10	3220.0 EJ
AI-SO-518-03	R	07/06/89	1325	16.90	6.60 B	4190.0	4.2 UNWUJ	16.10 NJ	212.0 B	0.8 UNR	79.60	2770.0 EJ
AI-SO-518-04	N	07/06/89	1330	0.18 NJ	18.30	4640.0	0.6 UNWUJ	2.20 UN	226.0 B	0.6 UNR	45.50	22700.0
AI-SO-519-01	N	06/23/89	1159	3.20	2.60 B	2000.0	1.1 S	11.90	317.0 B	0.6 UN	30.40	2180.0
AI-SO-520-01	N	06/23/89	0841	0.10 U	10.00	2910.0	0.6 UW	8.20	166.0 B	0.6 UN	54.50	318.0
AI-SO-520-03	N	06/23/89	0846	0.08 UN	9.20	6150.0	0.4 UNWUJ	1.60 UN	110.0 B	0.4 UNR	67.20	69.6
AI-SO-520-06	N	06/23/89	0913	0.13 UN	12.30	5550.0	0.5 UNWUJ	2.30 BNJ	311.0 B	0.5 UNR	48.70	1660.0
AI-SO-520-08	N	06/23/89	0939	0.10 UN	2.70 B	930.0 B	0.4 UNWUJ	1.70 UN	103.0 B	0.4 UNR	74.90	162.0
AI-SO-521-01	N	07/06/89	1345	0.72 NJ	1.40 U	592.0 B	0.4 UNWUJ	17.90 NJ	218.0 B	0.4 UNR	2.90 B	2290.0
AI-SO-522-01	N	07/06/89	1215	1.30 NJ	1.50 U	1240.0	0.7 BNWJ	43.10 NJ	678.0 B	0.7 BNJ	9.40 B	1730.0
AI-SO-523-01	N	07/06/89	1130	11.50 NJ	3.10 B	2880.0	2.0 NLJ	117.00 NJ	805.0 B	1.2 BNJ	29.30	10200.0
AI-SO-524-01	N	07/06/89	1240	1.50 NJ	1.70 U	932.0 B	0.6 BNWJ	24.10 NJ	591.0 B	0.5 UNR	6.10 B	1580.0
AI-SO-525-01	N	07/06/89	1420	1.20 NJ	1.50 U	1350.0	0.5 BNJ	41.00 NJ	395.0 B	0.5 BNJ	8.90 B	842.0
AI-SO-525-01	WB	07/06/89	1421	0.20 U	9.00 U	132.0 U	3.0 U	9.00 U	138.0 B	2.0 U	5.00 U	25.8
AI-SO-525-01	BB	07/06/89	1422	0.20 U	9.00 U	132.0 U	3.0 UW	9.00 U	615.0 B	2.0 U	5.00 U	95.7
AI-SO-525-01	BFS	07/06/89	1423	16.20	112.00	2050.0	52.4	26.70	6130.0	92.7 S	53.50	68.3
AI-SO-526-01	N	07/06/89	1250	1.60 NJ	1.40 U	1190.0	0.8 BNWJ	37.70 NJ	701.0 B	0.8 BNJ	9.20 B	2820.0
AI-SO-526-01	N	07/06/89	1255	1.40 NJ	2.60 B	1380.0	0.9 BNJ	39.40 NJ	723.0 B	0.4 UNR	10.30 B	2870.0
AI-SO-601-02	N	06/28/89	1615	0.10 UN	9.80	3490.0	0.7 UW	1.70 UN	94.5 B	0.7 UNR	37.80	223.0
AI-SO-601-06	N	06/28/89	1650	0.09 UN	4.10 B	2280.0	0.6 UNWUJ	1.90 UN	59.1 B	0.6 UNWR	35.30	145.0
AI-SO-602-08	N	06/29/89	1100	0.09 UN	1.80 U	1070.0	2.6 UNWUJ	8.80 UN	93.4 B	0.5 UNR	68.80	13000.0
AI-SO-603-02	N	06/28/89	1431	0.12 NJ	5.10 B	2690.0	0.6 U	1.80 UN	129.0 B	0.6 UNR	39.60	473.0
AI-SO-603-04A	N	06/28/89	1513	0.41 NJ	1.80 U	1240.0	0.9 B	4.60 NJ	200.0 B	0.6 UNR	20.70	340.0
AI-SO-603-05A	N	06/28/89	1520	2.40 NJ	9.90	3000.0	10.4 LJ	37.50 NJ	103.0 B	1.3 BNJ	51.40	4370.0
AI-SO-603-06	N	06/28/89	1530	0.11 UN	8.00 B	5030.0	0.8 UNWUJ	2.00 UN	186.0 B	0.8 UNR	44.40	1030.0

NOTES: 1) Units are mg/Kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

05/04/9D

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPa TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-603-08	N	06/28/89	1548	88	8-94358	MHT808	9370	5.9 UNR	23.5	105.0	0.4 U	0.87 U
AI-SD-606-09	N	06/29/89	0910	6C	8-94359	MHT809	6350	24.0 BNJ	851.0	374.0	0.5 8	3.40 U
AI-SD-607-06	N	06/29/89	0755	8A	8-94360	MHT810	20400	7.5 UNR	104.0	202.0	1.9	13.80
AI-SD-611-03	N	06/26/89	1600	6E	8-93609	MHN509	2300	9.8 BN	78.5 0	84.9	0.2 U	0.44 UND
AI-SD-611-03	N	06/26/89	1601	6E	8-94361	MHT811	2590	5.5 UNR	113.0	80.2	0.4 U	0.82 U
AI-SD-611-08	N	06/26/89	1630	6E	8-94362	MHT812	1870	6.0 UNR	19.6 LJ	504.0	0.4 U	0.89 U
AI-SD-611-15B	N	06/26/89	1738	8A	8-94363	MHT813	19600	7.6 UNR	35.6	271.0	1.2 8	12.90
AI-SD-611-17	N	06/26/89	1800	8C	8-94364	MHT814	8650	5.2 UNR	31.9	90.0	0.4 U	2.40
AI-SD-611-17	R	06/26/89	1810	8C	8-94365	MHT815	8160	5.5 UNR	30.8	95.5	0.4 U	1.60
AI-SD-611-18	N	06/26/89	1810	2	8-93740	MHT740	420	30.2 NJ	261.0 S	71.4	0.2 U	2.20 NJ
AI-SD-611-18	N	06/26/89	1830	2	8-93612	MHN512	228	23.6 N	165.0 D	65.0	0.2 U	1.90 ND
AI-SD-611-18	BB	06/26/89	1830	2	8-93614	MHN514	26 U	16.0 U	2.0 UW	2.0 U	1.0 U	3.90 B
AI-SD-611-18	WB	06/26/89	1830	2	8-93616	MHN515	26 U	16.0 U	2.0 U	2.0 U	1.0 U	2.00 U
AI-SD-611-18	R	06/26/89	1835	2	8-93613	MHN513	279	26.2 N	156.0 0	60.9	0.2 U	1.70 ND
AI-SD-612-04	N	06/27/89	1523	6E	8-94366	MHT816	1460	4.9 UNR	23.4	250.0	0.4 U	0.73 U
AI-SD-612-09	N	06/27/89	1600	8A	8-94367	MHT817	16600	7.5 UNR	1500.0	279.0	0.6 U	1.10 U
AI-SD-612-11	N	06/27/89	1620	8B	8-94368	MHT818	6750	6.2 UNR	254.0	144.0	0.8 B	0.92 U
AI-SD-612-11	R	06/27/89	1630	8B	8-94369	MHT819	8490	6.0 UNR	250.0	150.0	0.7 B	0.88 U
AI-SD-612-13	N	06/29/89	0910	8A	8-93610	MHN510	21800	4.2 BNJ	617.0 0J	255.0	0.4 8	0.49 UNDUJ
AI-SD-612-13	N	06/29/89	0911	8A	8-93738	MHT738	23500	4.7 UNUJ	594.0	235.0	0.8 B	1.10 UNUJ
AI-SD-613-06	N	06/29/89	1400	4	8-94371	MHT821	3230	10.2 BNJ	784.0	76.0	0.4 U	0.88 U
AI-SD-613-08	N	06/29/89	1425	8B	8-94372	MHT822	12100	5.9 UNUJ	70.3 S	131.0	0.5 B	0.88 U
AI-SD-614-02	N	06/28/89	1006	6A	8-94373	MHT823	2960	5.1 UNUJ	1.7 UWJ	62.3	0.4 U	0.76 U
AI-SD-614-03A	N	06/28/89	1010	4	8-94374	MHT824	7800	20.2 NJ	2350.0	237.0	0.5 U	9.80
AI-SD-614-048	N	06/28/89	1030	4	8-94375	MHT825	9720	46.9 NJ	5040.0	322.0	0.7 B	18.10
AI-SD-614-05	N	06/28/89	1035	8A	8-94376	MHT826	7200	5.0 UNUJ	12.3	85.1	0.4 U	5.80
AI-SD-614-06	N	06/28/89	1045	8B	8-94377	MHT827	5340	5.6 UNUJ	19.2	93.5	0.4 U	2.30
AI-SD-614-08	N	06/28/89	1055	8C	8-94378	MHT828	6620	4.9 UNUJ	15.2	45.7	0.4 U	0.73 U
AI-SD-614-09	N	06/28/89	1100	8C	8-94379	MHT829	4070	6.7 UNUJ	17.5	118.0	0.5 U	0.99 U
AI-SD-614-10	N	06/28/89	1110	8C	8-93611	MHN511	7870	3.3 UN	19.7 D	75.5	0.3 8	0.51 8NO
AI-SD-614-10	N	06/28/89	1111	8C	8-93739	MHT739	20200	3.8 UNUJ	21.9	130.0	0.2 U	0.89 UNUJ
AI-SD-615-058	N	06/27/89	0930	4	8-94380	MHT830	15400	28.8 NJ	1910.0	348.0	0.6 U	3.90
AI-SD-619-01	R	06/27/89	0750	6A	8-94382	MHT832	6600	5.4 UNUJ	8.0	107.0	0.4 U	0.80 U

NOTES: 1) Units are mg/kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, W8 = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM
ug/L

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SD-603-08	N	06/28/89	1548	1640	18.20	5.5	118.0	16000.0	46.7	3680.0	212.0
AI-SD-606-09	N	06/29/89	0910	5280	3.40 U	4.2	3420.0	173000.0	1930.0	1060.0	2620.0
AI-SD-607-06	N	06/29/89	0755	4230	13.90	7.5	4920.0	23200.0	105.0 LJ	6080.0	183.0
AI-SD-611-03	N	06/26/89	1600	1100	7.10	0.7	315.0 N	32200.0	84.8	280.0 B	22.4 D
AI-SD-611-03	N	06/26/89	1601	1030	6.90	1.0	278.0	27900.0	126.0	302.0 B	16.2
AI-SD-611-08	N	06/26/89	1630	195 B	4.90	1.1	409.0	24200.0	185.0	66.6 B	3.2 B
AI-SD-611-158	N	06/26/89	1738	3610	16.80	8.5	11100.0	19400.0	150.0 S	5280.0	190.0
AI-SD-611-17	N	06/26/89	1800	1720	17.90	5.3	1000.0	12700.0	67.2	3180.0	122.0
AI-SD-611-17	R	06/26/89	1810	2600	20.30	5.6	798.0	14600.0	56.2	3440.0	133.0
AI-SD-611-18	N	06/26/89	1810	113 B	2.00 U	1.0	196.0 DJ	9670.0	623.0 NDJ	23.0 B	20.5
AI-SD-611-18	N	06/26/89	1830	596 B	0.74 U	0.6	241.0 N	9110.0	532.0	29.6 B	7.6 D
AI-SD-611-18	BB	06/26/89	1830	60 B	4.00 U	3.0	3.0 U	250.0	3.6 D	25.0 U	23.3
AI-SD-611-18	WB	06/26/89	1830	106 B	0.80 U	3.0	5.6 B	16.0 U	2.0 UD	25.0 U	7.5 B
AI-SD-611-18	R	06/26/89	1835	862 B	3.80	0.6	175.0 N	8840.0	536.0	16.9 B	8.1 D
AI-SD-612-04	N	06/27/89	1523	1080 B	14.60	0.9	112.0	25900.0	198.0	273.0 B	105.0
AI-SD-612-09	N	06/27/89	1600	3250	11.50	5.5	953.0	49000.0	104.0	4750.0	113.0
AI-SD-612-11	N	06/27/89	1620	4790	13.80	5.9	537.0	51600.0	68.0	2550.0	303.0
AI-SD-612-13	R	06/27/89	1630	4850	21.90	6.4	562.0	49700.0	64.9	3050.0	316.0
AI-SD-612-13	N	06/29/89	0911	28000	21.30	7.1	1130.0 NJ	48500.0	102.0	5470.0	161.0 DJ
AI-SD-613-06	N	06/29/89	1400	802 B	5.40	7.7	1050.0 DJ	45900.0	94.7 NDJ	5160.0	151.0
AI-SD-613-08	N	06/29/89	1425	2790	18.60	2.7	252.0	31300.0	221.0 DSJ	1910.0	91.8
AI-SD-614-02	N	06/28/89	1006	5680	4.60	8.9	575.0	35600.0	73.4	5870.0	241.0
AI-SD-614-03A	N	06/28/89	1010	7730	8.80	3.1	125.0	8660.0	98.7	1470.0	324.0
AI-SD-614-04B	N	06/28/89	1030	935 B	11.90	5.6	4040.0	26100.0	1160.0 S	3530.0	609.0
AI-SD-614-05	N	06/28/89	1035	3570	6.40	5.8	34000.0	23800.0	2380.0 S	2530.0	1090.0
AI-SD-614-06	N	06/28/89	1045	1090	6.20	10.8	3250.0	15800.0	35.1	3280.0	759.0
AI-SD-614-08	N	06/28/89	1055	1680	5.00	4.7	1220.0	14300.0	25.2	3140.0	246.0
AI-SD-614-09	N	06/28/89	1100	1350	4.70	3.9	147.0	11900.0	27.4	2800.0	112.0
AI-SD-614-10	N	06/28/89	1110	1750	7.10	2.9	78.7	8370.0	38.0	1960.0	218.0
AI-SD-614-10	N	06/28/89	1111	3170	16.80	5.1	213.0 N	15800.0	43.3	3470.0	160.0 D
AI-SD-615-05B	N	06/27/89	0930	2340	16.30	9.0	281.0 DJ	29500.0	73.8 NDJ	6110.0	257.0
AI-SD-619-01	R	06/27/89	0750	4820	6.70	6.1	4470.0	37200.0	3010.0	4280.0	1460.0
						6.5	54.4	12800.0	19.8	4000.0	362.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-603-08	N	06/28/89	1548	0.12 UN	5.90 8	3370.0	0.7 UNWJ	2.00 UN	69.7 B	0.7 UNR	54.50	334.0
AI-SO-606-09	N	06/29/89	0910	0.11 UN	1.50 U	1630.0	3.0 U	7.60 UN	288.0 B	0.6 UNR	49.70	11900.0
AI-SO-607-06	N	06/29/89	0755	0.11 UN	9.00 B	4580.0	0.8 UNWJ	2.50 UN	263.0 8	0.8 UNR	47.40	1970.0
AI-SO-611-03	N	06/26/89	1600	0.11 U	1.70 B	1620.0	2.8 L	2.60	421.0 B	0.6 UN	29.10	36.3
AI-SO-611-03	N	06/26/89	1601	0.09 UN	1.80 U	1570.0	3.7 S	2.10 NJ	363.0 B	0.5 UNWR	26.30	40.3
AI-SO-611-08	N	06/26/89	1630	0.56 NJ	2.00 U	1390.0	1.0 BLJ	2.00 UN	29.9 8	0.7 UNR	18.00	18.7
AI-SO-611-158	N	06/26/89	1738	0.12 UN	10.00 8	4810.0	0.8 UNWJ	2.50 UN	104.0 8	0.8 UNR	42.80	1390.0
AI-SO-611-17	N	06/26/89	1800	0.09 UN	4.90 B	2350.0	0.7 U	1.70 UN	47.9 B	0.7 UNR	62.70	440.0
AI-SO-611-17	R	06/26/89	1810	0.09 UN	5.80 B	2480.0	0.7 U	1.80 UN	49.5 B	0.7 UNR	74.80	425.0
AI-SO-611-18	N	06/26/89	1810	1.60 NJ	1.40 U	708.0 B	0.4 UNWJ	44.30 NJ	534.0 B	0.4 UNR	2.80 8	974.0
AI-SO-611-18	N	06/26/89	1830	2.20	0.92 U	548.0 B	1.1	41.90	519.0 B	0.6 UN	1.90 8	801.0
AI-SO-611-18	BB	06/26/89	1830	0.20 U	9.20 8	77.0 U	3.0 UNW	5.20 B	429.0 B	3.0 U	3.00 U	681.0 E
AI-SO-611-18	WB	06/26/89	1830	0.20 U	5.00 U	77.0 U	3.0 UN	4.00 U	54.0 U	3.0 U	3.00 U	44.2 E
AI-SO-611-18	R	06/26/89	1835	2.10	1.00 U	538.0 8	1.0	36.80	500.0 8	0.6 UN	1.90 8	782.0
AI-SO-612-04	N	06/27/89	1523	0.97 NJ	1.60 U	2410.0	1.4 S	3.50 NJ	58.2 B	0.6 UNR	12.20	89.7
AI-SO-612-09	N	06/27/89	1600	0.15 UN	6.20 B	5020.0	0.9 U	2.50 UN	466.0 B	0.9 UNR	33.70	940.0
AI-SO-612-11	N	06/27/89	1620	0.10 UN	3.50 B	1860.0	0.7 U	2.10 UN	57.5 8	0.7 UNR	155.00	369.0
AI-SO-612-11	R	06/27/89	1630	0.12 UN	4.70 B	2180.0	0.7 U	2.00 UN	74.9 8	0.7 UNR	146.00	442.0
AI-SO-612-13	N	06/29/89	0910	0.13 U	9.60 8	4440.0	2.7 MEJ	0.98 U	417.0 B	0.7 UNR	52.90	1190.0
AI-SO-612-13	N	06/29/89	0911	0.14 UN	7.80 8	4260.0	0.6 UNWJ	2.20 UN	432.0 8	0.6 UNR	44.70	1120.0
AI-SO-613-06	N	06/29/89	1400	0.45	2.00 U	2370.0	0.6 BJ	5.60 NJ	549.0 8	0.4 UNR	34.90	465.0
AI-SO-614-02	N	06/29/89	1425	0.12 U	7.80 B	3840.0	0.5 UJ	2.00 UNWJ	233.0 8	0.5 UNWR	82.50	471.0
AI-SO-614-03A	N	06/28/89	1006	0.09 U	2.70 8	1150.0	0.3 UJ	1.70 UNWJ	89.6 B	0.3 UNWR	15.50	171.0
AI-SO-614-048	N	06/28/89	1010	39.10	5.50 B	3400.0	3.9 J	37.20 NJ	243.0 8	0.9 BNWJ	45.20	1570.0
AI-SO-614-05	N	06/28/89	1030	0.14 U	7.70 8	2160.0	9.3 SJ	97.50 NJ	297.0 B	1.2 BNJ	40.20	3460.0
AI-SO-614-06	N	06/28/89	1035	0.08 U	4.70 B	3040.0	0.4 UJ	1.70 UNWJ	82.7 B	0.4 UNR	28.00	719.0
AI-SO-614-08	N	06/28/89	1045	0.09 U	6.40 8	2660.0	0.4 UJ	1.90 UNWJ	63.4 8	0.4 UNR	27.60	449.0
AI-SO-614-09	N	06/28/89	1055	0.10 U	3.40 B	2430.0	0.4 UJ	1.60 UNWJ	49.9 8	0.4 UNR	23.40	102.0
AI-SO-614-10	N	06/28/89	1100	0.12 U	3.00 B	1450.0	0.4 UNWJ	2.20 UNWJ	70.1 8	0.4 UNR	24.90	103.0
AI-SO-614-10	N	06/28/89	1110	0.11 U	4.30 B	2980.0	0.6 US	0.82 U	66.4 B	0.6 UN	32.20	174.0
AI-SO-614-10	N	06/28/89	1111	0.12 UN	9.50	5400.0	0.5 UNWJ	1.80 UN	109.0 B	0.5 UNR	58.80	282.0
AI-SO-615-05B	N	06/27/89	0930	99.40	6.50 8	3460.0	8.0 SJ	66.30 NJ	505.0 8	0.9 8NJ	67.90	2740.0
AI-SO-619-01	R	06/27/89	0750	0.09 U	4.20 8	3600.0	0.3 UNWJ	1.80 UNWJ	57.3 B	0.3 UNR	31.80	86.3

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, 8FS = blind field standard, WB = water blank, 8B = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CAESIUM
AI-SD-619-01	N	06/27/89	0755	6A	8-94381	MHT831	6380	5.5 UNUJ	8.1	99.9	0.4 U	0.81 U
AI-SD-619-06	N	06/27/89	0820	8A	8-94383	MHT833	21800	7.0 UNUJ	22.8	331.0	1.1 B	1.00 U
AI-SD-619-08	N	06/27/89	0830	8C	8-94384	MHT834	9390	6.3 UNUJ	25.6	104.0	0.5 U	0.93 U
AI-SD-619-11	W8	06/27/89	0832		8-93766	MHT766	30 U	27.0 U	2.0 U	2.0 U	2.0 U	4.00 U
AI-SD-619-11	BFS	06/27/89	0834	2	8-93768	MHT768	6890	9.9 B	40.2	51.1	42.9	43.80
AI-SD-619-42S	N	07/14/89	0830	2	8-93745	MHT745	392	24.9 NJ	363.0	99.8	0.2 U	2.20 NJ
AI-SD-619-42S	W8	07/14/89	0831	2	8-93769	MHT769	63 B	27.0 U	2.0 U	2.0 U	2.0 U	4.00 U
AI-SD-619-42S	B8	07/14/89	0832	2	8-93770	MHT770	30 U	27.0 U	2.0 U	2.0 U	2.0 U	6.20
AI-SD-619-42S	BFS	07/14/89	0833	2	8-93771	MHT771	7860	10.6 B	43.7	54.9	43.0	43.90
AI-SO-622-01	N	07/06/89	1440	6A	8-94385	MHT835	8230	5.5 BNJ	136.0	626.0	0.6 B	3.20
AI-SO-622-03	N	06/26/89	1245	6C	8-93741	MHT741	13000	6.2 BNJ	228.0	332.0	0.4 B	3.50 NJ
AI-SO-622-07	N	06/26/89	1307	8C	8-93742	MHT742	12700	4.1 UNUJ	21.3	162.0	0.2 U	0.97 UNUJ
AI-SO-622-09A	N	06/26/89	1320	8C	8-93743	MHT743	5830	3.4 UNUJ	17.0	77.2	0.2 U	0.90 BNJ
AI-SO-622-10B	N	06/26/89	1330	8C	8-93744	MHT744	22300	4.1 UNUJ	11.9	330.0	0.3 B	0.97 UNUJ

NOTES: 1) Units are mg/kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, 8FS = blind field standard, WB = water blank (cross contamination blank), B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-6: continued

05/04/90

Revision level: FINAL
TOTAL METALS: continuedDISSOLVED
HEXAVALENT
CHROMIUM
ug/L

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-619-01	N	06/27/89	0755	4780	6.70	6.5	49.9	11800.0	22.8	4030.0	426.0
AI-SO-619-06	N	06/27/89	0820	3350	15.80	10.8	3110.0	25600.0	64.4	7030.0	208.0
AI-SO-619-08	N	06/27/89	0830	7300	12.80	5.9	393.0	21900.0	106.0 S	3780.0	201.0
AI-SO-619-11	WB	06/27/89	0832	99 B	4.00 U	5.0	4.0 U	101.0 NJ	2.6 B	35.0 U	4.6 B
AI-SO-619-11	BFS	06/27/89	0834	1270	50.40	45.6	87.6	911.0	90.2	547.0 B	167.0
AI-SO-619-42S	N	07/14/89	0830	416 B	2.10 U	1.1	429.0 OJ	12100.0	821.0 NOJ	65.2 B	15.5
AI-SO-619-42S	WB	07/14/89	0831	118 B	4.00 U	5.0	4.0 U	247.0 NJ	2.0 B	35.0 U	8.6 B
AI-SO-619-42S	B8	07/14/89	0832	128 B	4.00 U	5.0	4.0 U	43.4 BNJ	1.4 B	35.0 U	10.7 B
AI-SO-619-42S	8FS	07/14/89	0833	1280	51.50	46.0	87.5	963.0	91.5	564.0 B	168.0
AI-SO-622-01	N	07/06/89	1440	13100	14.40	5.8	754.0	20900.0	649.0	3000.0	738.0
AI-SO-622-03	N	06/26/89	1245	4320	11.20	9.1	842.0 OJ	31800.0	418.0 NOJ	5050.0	537.0
AI-SO-622-07	N	06/26/89	1307	2250	12.60	10.1	792.0 OJ	23900.0	55.2 NOJ	4970.0	366.0
AI-SO-622-09A	N	06/26/89	1320	1460	14.50	7.6	390.0 J	26800.0	44.3 NOJ	2050.0	326.0
AI-SO-622-108	N	06/26/89	1330	4220	27.50	17.9	934.0 OJ	37800.0	61.6 NOJ	9020.0	727.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, K8 = Kimwipe blank, BFS = blind field standard, WB = water blank, B8 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

05/04/90

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SD-619-01	N	06/27/89	0755	0.09 U	4.10 B	3530.0	0.3 UWJ	1.80 UNUJ	49.7 B	0.3 UNR	29.10	212.0
AI-SD-619-06	N	06/27/89	0820	0.11 U	13.80	4420.0	0.5 UWJ	2.30 UNUJ	159.0 B	0.5 UNR	47.50	1210.0
AI-SD-619-08	N	06/27/89	0830	0.11 U	5.80 B	2780.0	0.4 UWJ	2.10 UNUJ	76.5 B	0.4 UNR	52.60	421.0
AI-SD-619-11	WB	06/27/89	0832	0.20 U	9.00 U	132.0 U	3.0 U	9.00 U	107.0 B	2.0 U	5.00 U	15.4 B
AI-SD-619-11	BFS	06/27/89	0834	13.40	113.00	2150.0	60.8 S	27.60	6270.0	78.4 S	55.80	66.9
AI-SD-619-42S	N	07/14/89	0830	2.10 NJ	1.50 U	988.0 B	0.4 UNUJ	58.70 NJ	421.0 B	0.5 BNJ	2.10 B	1150.0
AI-SD-619-42S	WB	07/14/89	0831	0.20 U	9.00 U	132.0 U	3.0 U	9.00 U	102.0 B	2.0 U	5.00 U	16.6 B
AI-SD-619-42S	BB	07/14/89	0832	0.20 U	9.00 U	132.0 U	10.3	9.00 U	557.0 B	2.0 U	5.00 U	52.9
AI-SD-619-42S	BFS	07/14/89	0833	14.40	115.00	2180.0	53.6	27.50	6270.0	87.3 S	56.10	67.2
AI-SD-622-01	N	07/06/89	1440	1.40	7.90	2590.0	0.4 UJ	5.80 NJ	554.0 B	0.4 UNR	29.40	1390.0
AI-SD-622-03	N	06/26/89	1245	0.90 NJ	7.80 B	4570.0	0.8 BNWJ	9.90 NJ	328.0 B	0.5 UNR	50.40	2170.0
AI-SD-622-07	N	06/26/89	1307	0.11 UN	7.50 B	3670.0	0.5 UNWUJ	1.90 UN	149.0 B	0.5 UNR	51.40	870.0
AI-SD-622-09A	N	06/26/89	1320	0.10 UN	5.40 B	1630.0	0.4 BNWJ	1.60 UN	104.0 B	0.4 UNR	93.80	636.0
AI-SD-622-10B	N	06/26/89	1330	0.12 UN	23.00	6940.0	0.5 UNWUJ	1.90 UN	316.0 B	0.5 UNR	68.30	1650.0

NOTES:

- 1) Units are mg/Kg unless otherwise noted.
- 2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
- 3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
- 4) Blank values indicate parameters not determined or not reported.

APPENDIX C-7

Total Metals by Grain Size Data Base

03/12/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SO-101-01	N	06/13/89	0855	4	8-21656	MHS201	1930	19.0 B	189.0	46.0 B	1.0 UNUJ	492.00
AI-SO-114-01	N	06/13/89	1625	1	8-21657	MHS202	1720	19.0 U	251.0	20.0 B	1.0 UNUJ	134.00
AI-SO-117-02	N	06/14/89	1155	3	8-21658	MHS203	239	19.0 U	12.1 L	12.0 U	1.0 UNUJ	1.00 U
AI-SO-124-01	N	06/16/89	0815	4	8-21659	MHS204	914	19.0 U	11.6 L	16.0 B	1.0 UNUJ	537.00
AI-SO-146-01	N	06/22/89	0920	6A	8-21660	MHS205	22700	19.0 U	42.0	28.0 B	1.0 BNUJ	62.00
AI-SO-146-01	BFS	06/22/89	0923		8-21661	MHS206	96 B	155.0	10.9 L	108.0 B	35.0 NJ	219.00
AI-SO-173-01	N	08/03/89	1045	4	8-21662	MHS207	1090	19.0 U	13.0 L	20.0 B	1.0 UNUJ	28.80
AI-SO-174-01	N	08/03/89	1145	7	8-21663	MHS208	1740	19.0 U	247.0	281.0	1.0 UNUJ	28.80
AI-SO-177-01	N	08/03/89	1415	4	8-21664	MHS209	6280	19.0 U	18.8 L	15.0 B	2.0 BNUJ	68.00
AI-SO-184-01	N	08/04/89	1510	2	8-21665	MHS210	89700	40.0 B	9600.0	468.0 J	3.0 NJ	971.00
AI-SO-186-01	N	08/04/89	1600	5	8-21666	MHS211	44000	19.0 U	66.0	12.0 U	14.0 NJ	2900.00
AI-SO-186-01	R	08/04/89	1601	5	8-21667	MHS212	45300	19.0 U	51.0	12.0 U	12.0 NJ	1990.00
AI-SO-500-11	N	07/06/89	0815	2	8-21668	MHS213	3590	121.0	970.0	59.0 B	1.0 UNUJ	26.00
AI-SO-505-01	N	07/06/89	1025	1	8-21669	MHS214	24700	19.0 U	23.6 L	19.0 B	15.0 NJ	1270.00
AI-SO-505-01	WB	07/06/89	1035		8-21670	MHS215	41 U	19.0 U	5.0 B	12.0 U	1.0 UNUJ	1.20 B
AI-SO-505-01	BB	07/06/89	1040		8-21671	MHS216	41 U	19.0 U	7.3 B	12.0 U	1.0 UNUJ	1.00 U
AI-SO-507-01	N	06/20/89	1715	4	8-21672	MHS217	5460	24.0 B	139.0	56.0 B	1.0 UNUJ	101.00
AI-SO-507-11	N	06/20/89	1830	2	8-21673	MHS218	211 J	27.0 B	175.0	17.0 B	1.0 UNUJ	52.00
AI-SO-508-02A	N	06/21/89	1542	2	8-21674	MHS219	52500	390.0 B	2540.0	435.0 J	1.0 UNUJ	31.00
AI-SO-509-01A	N	07/06/89	0944	4	8-21675	MHS220	8250	19.0 U	103.0	12.0 U	9.0 NJ	4990.00
AI-SO-509-09	N	06/22/89	0800	4	8-21676	MHS221	1500 J	19.0 UNUJ	66.0 EJ	24.0 B	2.2	5200.00 J
AI-SO-509-09	WB	06/22/89	0810		8-21677	MHS222	41 UNUJ	19.0 UNUJ	3.0 UE	12.0 U	1.0 U	0.48 S
AI-SO-509-09	BB	06/22/89	0815		8-21678	MHS223	41 UNUJ	19.0 UNUJ	3.0 UE	19.0 B	1.0 U	1.50
AI-SO-510-01A	N	06/19/89	1515	1	8-21679	MHS224	46000 J	19.0 UNUJ	370.0 EJ	37.0 B	13.0	4000.00 J
AI-SO-516-01A	N	06/22/89	1430	1	8-21680	MHS225	3800 J	37.0 BJ	710.0 EJ	59.0 B	2.6	650.00 J
AI-SO-516-10	N	06/22/89	1620	2	8-21681	MHS226	7300 J	39.0 BJ	660.0 EJ	79.0 B	1.0 U	78.00 J
AI-SO-517-01	N	07/06/89	1400	1	8-21682	MHS227	3500 J	62.0 J	780.0 EJ	180.0 B	1.0 U	11.00 J
AI-SO-517-09	N	06/23/89	1410	2	8-21683	MHS228	6100 J	90.0 J	1100.0 EJ	200.0 B	1.0 U	23.00 J
AI-SO-517-09	BFS	06/23/89	1430		8-21684	MHS229	41 UNUJ	180.0 J	41.0 E	140.0 B	39.0	240.00 J
AI-SO-518-01	N	07/06/89	1310	1	8-21685	MHS230	19000 J	19.0 UNUJ	800.0 EJ	23.0 B	3.7	600.00 J
AI-SO-518-04	N	07/06/89	1330	8A	8-21686	MHS231	720 J	19.0 UNUJ	16.0 E	37.0 B	1.0 U	130.00 J
AI-SO-521-01	N	07/06/89	1345	1	8-21687	MHS232	7700 J	20.0 BJ	1100.0 EJ	29.0 B	3.5	320.00 J
AI-SO-524-01	N	07/06/89	1240	1	8-21688	MHS233	570 J	19.0 UNUJ	500.0 EJ	12.0 U	1.0 U	44.00 J

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

APPENDIX C-7: continued

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-101-01	N	06/13/89	0855	425000 EJ	125.0	59.0	20000.0	1860.0	49.7	91300.0	51000.0
AI-SO-114-01	N	06/13/89	1625	14300 EJ	9.0 B	12.0	25000.0	1610.0	152.0	7280.0	6410.0
AI-SO-117-02	N	06/14/89	1155	95300 EJ	8.0 U	12.0	6.0 U	450.0	11.9 S	6210.0	1110.0
AI-SO-124-01	N	06/16/89	0815	514000 EJ	34.0	35.0	1560.0	476.0	6.0	363000.0	57000.0
AI-SO-146-01	N	06/22/89	0920	23900 EJ	13.0	21.0	8650.0	9020.0	75.5	7180.0	1490.0
AI-SO-146-01	BFS	06/22/89	0923	155 UEJ	192.0	78.0	215.0	140.0	165.0	172.0 U	211.0
AI-SO-173-01	N	08/03/89	1045	445000 EJ	10.0	12.0	25000.0	1660.0	2.3	87000.0	575.0
AI-SO-174-01	N	08/03/89	1145	10600 EJ	8.0 U	12.0	1460.0	870.0	185.0	656.0 B	1740.0
AI-SO-177-01	N	08/03/89	1415	331000 EJ	12.0	13.0	14000.0	1320.0	18.0 L	46700.0	20300.0
AI-SO-184-01	N	08/04/89	1510	67900 EJ	46.0	86.0	873000.0	249000.0	823.0	13700.0	9610.0
AI-SO-186-01	N	08/04/89	1600	403000 EJ	31.0	252.0	1300000.0	20800.0	142.0	54600.0	36800.0
AI-SO-186-01	R	08/04/89	1601	392000 EJ	26.0	261.0	1380000.0	21700.0	80.0	56800.0	36800.0
AI-SO-500-11	N	07/06/89	0815	580 BEJ	8.0 U	12.0	627.0	5560.0	702.0	172.0 U	690.0
AI-SO-505-01	N	07/06/89	1025	519000 EJ	368.0	348.0	950000.0	3430.0	97.2	928000.0 J	669000.0
AI-SO-505-01	WB	07/06/89	1035	155 UEJ	8.0 U	12.0	39.0	12.0 U	1.0 U	172.0 U	70.0
AI-SO-505-01	BB	07/06/89	1040	155 UEJ	8.0 U	12.0	6.0 U	12.0 U	1.0 U	172.0 U	8.0 B
AI-SO-507-01	N	06/20/89	1715	315000 EJ	200.0	15.0	2610.0	9630.0	521.0	57100.0	348000.0
AI-SO-507-11	N	06/20/89	1830	1560 BEJ	8.0 U	12.0	797.0	1010.0	150.0	172.0 U	1360.0
AI-SO-508-02A	N	06/21/89	1542	9550 EJ	15.0	12.0	1880.0	18500.0	1480.0	5230.0	12800.0
AI-SO-509-01A	N	07/06/89	0944	481000 EJ	145.0	254.0	532000.0	1740.0	40.3	189000.0	341000.0
AI-SO-509-09	N	06/22/89	0800	130000	27.0	42.0	200000.0	2700.0 EJ	220.0 NE	19000.0 J	57000.0 J
AI-SO-509-09	WB	06/22/89	0810	160 U	8.0 U	12.0	17.0 8J	12.0 UEU	7.0 UER	170.0 U	6.0 UIUJ
AI-SO-509-09	BB	06/22/89	0815	160 U	8.0 8	21.0	6.0 UIUJ	12.0 UEU	0.5 BEJ	170.0 U	6.0 UIUJ
AI-SO-510-01A	N	06/19/89	1515	550000	28.0	73.0	420000.0	17000.0 EJ	170.0 NEJ	36000.0 J	40000.0 J
AI-SO-516-01A	N	06/22/89	1430	720000	25.0	83.0	18000.0 J	7500.0 EJ	380.0 NEJ	64000.0 J	33000.0 J
AI-SO-516-10	N	06/22/89	1620	110000	10.0 B	12.0	590000.0 J	14000.0 EJ	620.0 NEJ	6300.0 J	2000.0 J
AI-SO-517-01	N	07/06/89	1400	6600	10.0 B	12.0	1900.0 J	11000.0 EJ	720.0 NEJ	670.0 BJ	380.0 J
AI-SO-517-09	N	06/23/89	1410	3600 8	10.0 B	12.0	5200.0 J	8500.0 EJ	680.0 NEJ	920.0 BJ	640.0 J
AI-SO-517-09	BFS	06/23/89	1430	160 U	160.0	110.0	190.0 J	120.0 EJ	160.0 NEJ	170.0 UJ	240.0
AI-SO-518-01	N	07/06/89	1310	530000	20.0	54.0	110000.0 J	6600.0 EJ	58.0 NEJ	26000.0 J	24000.0 J
AI-SO-518-04	N	07/06/89	1330	170000	8.0 U	13.0	400.0 J	880.0 EJ	0.6 BWEJ	8700.0 J	5000.0 J
AI-SO-521-01	N	07/06/89	1345	520000	8.0 B	38.0	64000.0 J	4700.0 EJ	130.0 NEJ	17000.0 J	6400.0 J
AI-SO-524-01	N	07/06/89	1240	180000	8.0 U	16.0	2500.0 J	1700.0 EJ	79.0 NEJ	16000.0 J	8000.0 J

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (the instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-101-01	N	06/13/89	0855	0.29	61.5	59900.0	5.0 UNR	32.50	375000 EJ	4740.0	6.0 B	88800.0
AI-SO-114-01	N	06/13/89	1625	8.10	33.4	7020.0 J	5.0 UNR	16.40	95700 EJ	123.0	15.0 B	37000.0
AI-SO-117-02	N	06/14/89	1155	0.15 B	2.0	3270.0 BJ	5.0 UNR	0.60 UJ	13600 EJ	14.0	6.0 U	120.0
AI-SO-124-01	N	06/16/89	0815	1.30	50.6	82600.0	5.0 UNR	9.40	821000 EJ	1440.0	9.0 B	230000.0
AI-SO-146-01	N	06/22/89	0920	0.44	24.3 B	3130.0 BJ	5.0 ULNR	1.30 B	12200 EJ	29.0	7.0 B	13000.0
AI-SO-146-01	BFS	06/22/89	0923	4.50	71.1	1490.0 BUJ	24.6 NJ	48.00	6280 EJ	49.0	226.0	259.0
AI-SO-173-01	N	08/03/89	1045	0.10 B	2.4	33600.0	5.0 UNR	1.00 UL	172000 EJ	9.0 U	6.0 B	2000.0
AI-SO-174-01	N	08/03/89	1145	0.10 B	4.7	3470.0 BJ	5.0 UNR	1.00 UL	1600 BEJ	32.0	11.0 B	1410.0
AI-SO-177-01	N	08/03/89	1415	3.50	18.2 B	20200.0	5.0 UNR	1.00 U	178000 EJ	344.0	6.0 U	23400.0
AI-SO-184-01	N	08/04/89	1510	7.00	76.0	14300.0	5.0 UNR	142.00	2820 BEJ	47.0	62.0	434000.0
AI-SO-186-01	N	08/04/89	1600	0.82	169.0	2720.0 BJ	5.0 UNR	4.70	1890 BEJ	652.0	6.0	1030000.0
AI-SO-186-01	R	08/04/89	1601	0.63	166.0	1590.0 BUJ	5.0 UNR	4.10 B	1200 BEJ	512.0	6.0 U	980000.0
AI-SO-500-11	N	07/06/89	0815	30.00	3.2 B	2260.0 BJ	5.0 UNR	47.80	1400 BEJ	9.0 U	16.0 B	9460.0
AI-SO-505-01	N	07/06/89	1025	7.20	422.0	9700.0	5.0 UNR	68.70	19100 EJ	15400.0	6.0 U	441000.0
AI-SO-505-01	WB	07/06/89	1035	0.10 B	2.0 U	596.0 UJ	8.9 NJ	1.00 U	706 BEJ	9.0 U	6.0 B	38.0
AI-SO-505-01	BB	07/06/89	1040	0.10 U	2.3 B	596.0 UJ	7.7 NJ	1.00 U	207 UEJ	9.0 U	6.0 U	12.0 B
AI-SO-507-01	N	06/20/89	1715	75.40	35.1	11600.0	5.0 UNR	58.30	8990 EJ	6520.0	6.0 U	30800.0
AI-SO-507-11	N	06/20/89	1830	0.97	3.5 B	771.0 B	14.4 NJ	7.80 B	388 BEJ	13.0	8.0 B	20100.0
AI-SO-508-02A	N	06/21/89	1542	49.30	6.7	28200.0	6.2 NJ	173.00	4300 BEJ	308.0	61.0	14000.0
AI-SO-509-01A	N	07/06/89	0944	16.90	181.0	596.0 U	5.0 UNR	31.70	3880 BEJ	5320.0	6.0 U	3150000.0
AI-SO-509-09	N	06/22/89	0800	0.63	61.0 NOJ	1200.0 B	5.0 UWNJ	7.70	3500 B	1200.0	6.0 U	580000.0
AI-SO-509-09	WB	06/22/89	0810	0.10 B	2.0 UNOJ	600.0 U	5.0 UWNJ	0.21 LS	210 U	9.0 U	10.0 B	45.0
AI-SO-509-09	BB	06/22/89	0815	0.10 B	2.0 UNOJ	600.0 U	5.0 N	1.00 U	210 U	9.0 U	6.0 U	12.0 B
AI-SO-510-01A	N	06/19/89	1515	2.00	110.0 NOJ	730.0 B	5.0 UENJ	34.00	20000	960.0	13.0 B	840000.0
AI-SO-516-01A	N	06/22/89	1430	5.50	91.0 NOJ	16000.0	5.0 UWNJ	22.00	130000	760.0	11.0 B	75000.0
AI-SO-516-10	N	06/22/89	1620	8.90	11.0 NOJ	8300.0	5.0 UWNJ	29.00	14000	53.0	6.0 U	16000.0
AI-SO-517-01	N	07/06/89	1400	5.70	2.3 NOJ	6200.0	5.0 ULNS	34.00	3100 B	9.0 U	16.0 B	2200.0
AI-SO-517-09	N	06/23/89	1410	30.00	21.0 NOJ	5600.0	5.0 UN	36.00	2700 B	9.0 U	15.0 B	6100.0
AI-SO-517-09	BFS	06/23/89	1430	4.50	71.0 NOJ	600.0 U	10.0 LNS	36.00	210 U	65.0	200.0	230.0
AI-SO-518-01	N	07/06/89	1310	1.30	44.0 NOJ	1400.0 B	5.0 UWNJ	16.00	23000	540.0	54.0	110000.0
AI-SO-518-04	N	07/06/89	1330	0.10 B	18.0 NOJ	6200.0	5.0 UN	0.49 LS	17000	120.0	6.0 U	14000.0
AI-SO-521-01	N	07/06/89	1345	0.49	37.0 NOJ	7300.0	6.0 UWNJ	11.00	29000	130.0	38.0 B	110000.0
AI-SO-524-01	N	07/06/89	1240	5.30	13.0 NOJ	6400.0	5.0 UN	5.10	67000	220.0	9.0 B	30000.0

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-7: BUTTE - AREA I SOILS SIEVE RINSEATES TOTAL METALS ANALYSES, 1989

03/12/90

Revision level: FINAL

TOTAL METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-611-18	N	06/26/89	1815	2	8-21689	MHS234	5400 J	190.0 J	800.0 EJ	110.0 B	1.0 U	2.10 LS
AI-SD-611-18	R	06/26/89	1825	2	8-21690	MHS235	2700 J	150.0 J	520.0 EJ	61.0 B	1.0 U	3.50 S
AI-SO-612-13	N	06/27/89	1600	BA	8-21691	MHS236	29000 J	19.0 UJJ	110.0 EJ	50.0 B	4.4	57.00 J
AI-SO-614-10	N	06/28/89	1110	BC	8-21692	MHS237	340 J	19.0 UJJ	3.0 UEU	49.0 B	1.0 U	12.00 J
AI-SO-619-42S	N	06/27/89	0900	2	8-21693	MHS238	970 J	50.0 BJ	81.0 EJ	12.0 B	1.0 U	4.60

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (the instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

APPENDIX C-7: continued

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SD-611-18	N	06/26/89	1815	1200 B	13.0	39.0	1000.0 J	27000.0 J	870.0 NEJ	170.0 U	27.0 J
AI-SD-611-18	R	06/26/89	1825	1800 B	8.0 U	33.0	780.0 J	14000.0 EJ	390.0 NEJ	240.0 BJ	23.0 J
AI-SD-612-13	N	06/27/89	1600	430000	48.0	31.0	28000.0 J	17000.0 EJ	8.1 EJ	13000.0 J	890.0 J
AI-SD-614-10	N	06/28/89	1110	24000	8.0 U	26.0	980.0 J	480.0 EJ	2.9 WEJ	660.0 BJ	270.0 J
AI-SD-619-42S	N	06/27/89	0900	14000	8.0 U	19.0	260.0 J	2500.0 J	140.0 NE	570.0 BEJ	32.0 J

- NOTES: 1) Units are mg/Kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

03/12/90

APPENDIX C-7: continued

Revision level: FINAL
TOTAL METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SD-611-18	N	06/26/89	1815	15.00	6.1 NDJ	2600.0 B	5.0 UWNJ	73.00	28000	9.0 U	21.0 B	630.0
AI-SD-611-18	R	06/26/89	1825	18.00	4.9 NDJ	1900.0 B	5.7 N	37.00	40000	9.0 U	12.0 B	620.0
AI-SD-612-13	N	06/27/89	1600	0.10 B	27.0 NDJ	4700.0 B	5.4 ENJ	0.20 UWJ	80000	9.0 U	22.0 B	18000.0
AI-SD-614-10	N	06/28/89	1110	0.83	3.0 NDJ	9300.0	5.0 UN	0.20 U	5100	9.0 U	14.0 B	590.0
AI-SD-619-42S	N	06/27/89	0900	18.00	22.0 NDJ	600.0 U	5.0 UN	8.60	18000	9.0 U	9.0 B	650.0

- NOTES: 1) Units are mg/Kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), WJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

APPENDIX C-8

Water Soluble Metals Data Base

03/12/90

Revision level: FINAL

WATER SOLUBLE METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CAESIUM
AI-SO-100-01	N	06/13/89	0808	4	8-86784	MHS384	550 EJ	19.0 U	12.0	31.0 B	1.3	350.00 EJ
AI-SO-111-01	N	06/13/89	1420	6A, 6C	8-86794	MHS394	180 BEJ	19.0 U	9.8 WJ	38.0 B	1.0 U	360.00 EJ
AI-SO-112-05	N	06/13/89	1530	2	8-86789	MHS389	530 EJ	21.0 B	86.0	29.0 B	1.0 U	120.00 EJ
AI-SO-112-05	BB	06/13/89	1535		8-86790	MHS390	41 UEUJ	19.0 U	3.0 UNUJ	12.0 U	1.0 U	0.10 UWEUJ
AI-SO-113-01	N	06/13/89	1615	1	8-86796	MHS396	190 BEJ	19.0 U	34.0	14.0 B	1.0 U	0.10 UWEJ
AI-SO-117-01	N	06/14/89	1155	3	8-86795	MHS395	240 EJ	19.0 U	9.3 LJ	12.0 U	1.0 U	0.10 UEUJ
AI-SO-121-01	N	06/15/89	1130	4	8-86793	MHS393	400 EJ	19.0 U	7.1	33.0 B	1.0 U	220.00 EJ
AI-SO-123-01	N	06/15/89	1355	4	8-86792	MHS392	290 EJ	19.0 U	4.9	29.0 B	1.0 U	66.00 EJ
AI-SO-125-01	N	06/16/89	0815	4	8-86785	MHS385	330 EJ	19.0 U	25.0 J	30.0 B	1.0 U	280.00 EJ
AI-SO-125-01	N	06/16/89	0817	4	8-86788	MHS388	440 EJ	19.0 U	24.0 J	33.0 B	1.0 U	270.00 EJ
AI-SO-126-01	N	06/16/89	0940	4	8-86787	MHS387	130 BEJ	19.0 U	110.0	26.0 B	1.0 U	0.10 UWEJ
AI-SO-128-01	N	06/16/89	1019	4	8-86786	MHS386	1300 EJ	19.0 U	3.8	12.0 U	1.1	22.00 EJ
AI-SO-131-01	N	06/16/89	1150	4	8-86798	MHS398	300 EJ	19.0 U	9.5	27.0 B	1.0 U	110.00 EJ
AI-SO-131-01	N	06/16/89	1155	4	8-86791	MHS391	60 BEJ	19.0 U	9.2	37.0 B	1.0 U	100.00 EJ
AI-SO-132-01	N	06/16/89	1320	7	8-86767	MHS367	81 BJ	19.0 U	45.0 UNUJ	56.0 B	1.0 U	0.15 B
AI-SO-132-01	R	06/16/89	1325	7	8-86771	MHS371	110 BJ	19.0 U	47.0 NJ	48.0 B	1.0 U	0.31
AI-SO-134-01	N	06/16/89	1425	4	8-86769	MHS369	76000 J	19.0 U	46.0 LJ	12.0 U	8.2	100.00
AI-SO-134-03	N	06/16/89	1415	4	8-86772	MHS372	500000 J	46.0 B	260.0 NJS	21.0 B	120.0	290.00
AI-SO-140-01	N	06/12/89	0930	5	8-86797	MHS397	250000 EJ	24.0 B	3900.0	12.0 U	4.7	89.00 EJ
AI-SO-140-01	N	06/21/89	0941	5	8-86799	MHS399	230000 EJ	19.0 U	3500.0	12.0 U	4.3	80.00 EJ
AI-SO-140-01	BFS	06/21/89	0943		8-86800	MHS400	260 EJ	150.0	49.0	140.0 B	37.0	240.00 EJ
AI-SO-145-01	N	06/22/89	0745	4	8-86770	MHS370	50 BJ	19.0 U	130.0 NJ	28.0 B	1.0 U	0.11 B
AI-SO-147-01	N	06/22/89	0920	6C, 6D	8-86768	MHS368	41 UUUJ	19.0 U	15.0	25.0 B	1.0 U	370.00
AI-SO-151-01	N	06/22/89	1535	5	8-86773	MHS373	1000 EJ	19.0 U	12.0	12.0 U	1.0 U	26.00 EJ
AI-SO-152-03	N	08/04/89	1320	2	8-86776	MHS376	2200 EJ	20.0 B	16.0	17.0 B	1.0 U	240.00 EJ
AI-SO-152-03	BFS	08/04/89	1325		8-86777	MHS377	73 BEJ	130.0	40.0	99.0 B	33.0	190.00 EJ
AI-SO-173-01	N	08/03/89	1048	4	8-86775	MHS375	280 EJ	19.0 U	3.8	13.0 B	1.0 U	10.00 EJ
AI-SO-173-04	N	08/03/89	1138	4	8-86774	MHS374	150 BEJ	19.0 U	5.3	30.0 B	1.0 U	0.72 EJ
AI-SO-174-01	N	08/03/89	1149	7	8-86778	MHS378	41 UEJ	19.0 U	160.0	19.0 B	1.0 U	0.10 UWEJ
AI-SO-175-02	N	08/03/89	1308	7	8-86782	MHS382	210 EJ	19.0 U	12.0	16.0 B	1.0 U	0.86 E
AI-SO-175-02	WB	08/03/89	1315		8-86783	MHS383	58 BEJ	19.0 U	3.0 UNUJ	12.0 U	1.0 U	0.10 UWEUJ
AI-SO-182-05	N	08/04/89	1120	8A	8-86779	MHS379	41 UEJ	19.0 U	120.0	49.0 B	1.0 U	12.00 EJ
AI-SO-184-01	N	08/04/89	1510	2	8-86781	MHS381	72000 EJ	19.0 U	8900.0	12.0 U	7.3	1800.00 EJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unusable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

APPENDIX C-8: continued

Revision level: FINAL
WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-100-01	N	06/13/89	0808	470000	8.0 U	19.0	23000.0	91.0 BEJ	0.4 UEUJ	32000.0	16000.0
AI-SO-111-01	N	06/13/89	1420	570000	8.0 U	13.0	150.0	66.0 BEJ	0.4 UJJ	23000.0 EJ	12000.0
AI-SO-112-05	N	06/13/89	1530	11000	8.0 U	30.0	170000.0	300.0 EJ	5.4	3400.0 B	2500.0
AI-SO-112-05	BB	06/13/89	1535	160 U	9.0 B	12.0	8.0 B	29.0 BEJ	0.5 BWJ	170.0 U	9.0 B
AI-SO-113-01	N	06/13/89	1615	2600 B	8.0 U	13.0	7.0 B	46.0 BEJ	0.4 UJJ	170.0 UEUJ	31.0
AI-SO-117-01	N	06/14/89	1155	470000	8.0 U	12.0	6.0 U	180.0 EJ	0.4 UEUJ	150000.0 EJ	710.0
AI-SO-121-01	N	06/15/89	1130	560000	66.0	16.0	3300.0	55.0 BEJ	0.4 UJJ	65000.0 EJ	170000.0
AI-SO-123-01	N	06/15/89	1355	760000	8.0 U	14.0	660.0	81.0 BEJ	0.4 UJJ	85000.0	3000.0
AI-SO-125-01	N	06/16/89	0815	680000	19.0	42.0	750.0	37.0 BEJ	0.4 UEUJ	190000.0	42000.0
AI-SO-125-01	N	06/16/89	0817	650000	16.0	34.0	800.0	74.0 BEJ	0.4 UEUJ	200000.0	38000.0
AI-SO-126-01	N	06/16/89	0940	71000	8.0 B	19.0	40.0	67.0 BEJ	0.4 UJJ	8300.0	21.0
AI-SO-128-01	N	06/16/89	1019	670000	8.0 U	25.0	1300.0	460.0 EJ	1.3 WJ	43000.0	6300.0
AI-SO-131-01	N	06/16/89	1150	530000	8.0 U	16.0	48.0	140.0 EJ	0.4 UEUJ	91000.0 EJ	2700.0
AI-SO-131-01	N	06/16/89	1155	770000	8.0 U	12.0	57.0	73.0 BEJ	0.4 UEUJ	78000.0	2500.0
AI-SO-132-01	N	06/16/89	1320	35000 BEJ	10.0 B	12.0	57.0 ENJ	12.0 UEU	1.3	6900.0	14.0 B
AI-SO-132-01	R	06/16/89	1325	3800 E	8.0 U	30.0	57.0 ENJ	27.0 BEJ	1.7	7500.0	12.0 B
AI-SO-134-01	N	06/16/89	1425	310000 E	53.0	190.0	41000.0 ENJ	11000.0 EJ	0.4 UJJ	44000.0	6700.0
AI-SO-134-03	N	06/16/89	1415	300000 E	81.0	580.0	820000.0 ENJ	85000.0 EJ	0.4 UJJ	94000.0	10000.0
AI-SO-140-01	N	06/12/89	0930	490000	69.0	200.0	27000.0	600000.0 EJ	1.8	88000.0 EJ	6200.0
AI-SO-140-01	N	06/21/89	0941	410000	75.0	170.0	25000.0	690000.0 EJ	12.0	88000.0 EJ	6200.0
AI-SO-140-01	BFS	06/21/89	0943	160 U	170.0	96.0	180.0	290.0 EJ	150.0	170.0 UEUJ	240.0
AI-SO-145-01	N	06/22/89	0745	44000 E	8.0 U	24.0	91.0 ENJ	40.0 BEJ	0.8 BWJ	2300.0 B	11.0 B
AI-SO-147-01	N	06/22/89	0920	410000 E	8.0 U	24.0	730.0 ENJ	49.0 BEJ	0.4 UJ	15000.0	6400.0
AI-SO-151-01	N	06/22/89	1535	720000	14.0	16.0	8100.0	360.0 EJ	1.3 WJ	4300.0 B	36000.0
AI-SO-152-03	N	08/04/89	1320	130000	8.0 U	54.0	520000.0	1300.0 EJ	2.0 J	3100.0 B	2100.0
AI-SO-152-03	8FS	08/04/89	1325	160 U	140.0	77.0	160.0	120.0 EJ	140.0	170.0 U	190.0
AI-SO-173-01	N	08/03/89	1048	650000	8.0 U	12.0	98.0	12.0 UEU	0.4 UEJ	79000.0	800.0
AI-SO-173-04	N	08/03/89	1138	6900	8.0 U	12.0	140.0	12.0 UE	2.2	1200.0 B	57.0
AI-SO-174-01	N	08/03/89	1149	3100 B	8.0 U	12.0	23.0 B	21.0 BEJ	2.2 J	170.0 U	23.0
AI-SO-175-02	N	08/03/89	1308	6900	8.0 U	12.0	54.0	380.0 EJ	42.0	1600.0 B	49.0
AI-SO-175-02	WB	08/03/89	1315	160 U	8.0 U	12.0	6.0 U	12.0 UEJ	0.9 B	170.0 U	9.0 B
AI-SO-182-05	N	08/04/89	1120	29000	8.0 U	30.0	32.0	100.0 BEJ	0.4 UJJ	7400.0	5000.0
AI-SO-184-01	N	08/04/89	1510	270000	71.0	150.0	900000.0	250000.0 EJ	0.4 UJJ	17000.0	15000.0

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

Revision level: FINAL

WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-SO-100-01	N	06/13/89	0808		24.0	29000.0	5.0 UEUJ	1.10 LJ	100000	310.0	6.0 U	70000.0
AI-SO-111-01	N	06/13/89	1420		33.0	29000.0 EJ	5.0 UENUJ	0.24 WJ	18000 EJ	220.0	6.0 U	39000.0
AI-SO-112-05	N	06/13/89	1530		21.0	830.0 B	5.0 U	0.82 LJ	2700 B	45.0	6.0 U	39000.0
AI-SO-112-05	BB	06/13/89	1535		2.0 U	600.0 U	5.0 U	0.25 LJ	210 U	18.0	6.0 U	16.0 B
AI-SO-113-01	N	06/13/89	1615		2.0 U	1400.0 BEJ	5.0 UWNJ	0.31	810 BEJ	18.0	6.0 U	20.0 B
AI-SO-117-01	N	06/14/89	1155		2.0 U	2500.0 BEJ	5.0 UENUJ	1.10	170000 EJ	9.0 U	6.0 B	86.0
AI-SO-121-01	N	06/15/89	1130		96.0	50000.0 EJ	5.0 UENUJ	23.00	100000 EJ	3400.0	6.0 U	92000.0
AI-SO-123-01	N	06/15/89	1355		2.1	63000.0	5.0 UEUJ	2.80	120000	56.0	6.0 U	11000.0
AI-SO-125-01	N	06/16/89	0815		42.0	45000.0	5.0 UEUJ	5.70	400000	770.0	6.0 U	110000.0
AI-SO-125-01	N	06/16/89	0817		42.0	49000.0	5.0 UEUJ	5.20	380000	740.0	6.0 U	100000.0
AI-SO-126-01	N	06/16/89	0940		2.0 U	12000.0	5.0 UEUJ	0.20 ULJ	2100 B	9.0 U	6.0 U	40.0
AI-SO-128-01	N	06/16/89	1019		11.0	4800.0 B	5.0 UEUJ	0.36 LJ	42000	140.0	6.0 U	27000.0
AI-SO-131-01	N	06/16/89	1150		7.5	70000.0 EJ	5.0 UENUJ	0.40	88000 EJ	66.0	6.0 U	27000.0
AI-SO-131-01	N	06/16/89	1155		6.1	63000.0	5.0 UEUJ	1.40 LR	74000	58.0	6.0 U	26000.0
AI-SO-132-01	N	06/16/89	1320		2.0 U	11000.0	5.0 UWJ	1.20 LJ	1000 B	9.0 U	23.0 B	22.0
AI-SO-132-01	R	06/16/89	1325		2.2	12000.0	5.0 UWJ	0.20 UWJ	1600 B	9.0 U	23.0 B	13.0 B
AI-SO-134-01	N	06/16/89	1425		120.0	600.0 U	5.0 UEUJ	0.82 LJ	210 U	120.0	14.0 B	21000.0
AI-SO-134-03	N	06/16/89	1415		390.0	600.0 U	5.0 UWJ	0.52	210 U	130.0	23.0 B	33000.0
AI-SO-140-01	N	06/12/89	0930		120.0	600.0 UEU	5.0 UENUJ	0.85 EJ	2500 BEJ	200.0	38.0 B	25000.0
AI-SO-140-01	N	06/21/89	0941		120.0	600.0 UEU	5.0 UENUJ	1.00 LJ	2500 BEJ	94.0	40.0 B	24000.0
AI-SO-140-01	BFS	06/21/89	0943		69.0	2700.0 BEJ	24.0 LNJ	60.00	86000 EJ	60.0	200.0	220.0
AI-SO-145-01	N	06/22/89	0745		2.2	6600.0	5.0 UWJ	0.25 LJ	13000	9.0 U	8.0 B	21.0
AI-SO-147-01	N	06/22/89	0920		25.0	9800.0	5.0 UEUJ	0.39 LJ	5900	130.0	7.0 B	86000.0
AI-SO-151-01	N	06/22/89	1535		13.0	600.0 U	5.0 UWJ	5.20	1900 B	800.0	6.0 U	21000.0
AI-SO-152-03	N	08/04/89	1320		57.0	1900.0 B	5.0 UE	0.57	690 B	32.0	6.0 U	100000.0
AI-SO-152-03	BFS	08/04/89	1325		64.0	2200.0 B	36.0	48.00	81000	50.0	170.0	180.0
AI-SO-173-01	N	08/03/89	1048		2.0 U	26000.0	5.0 U	0.37	65000	9.0 U	6.0 U	1400.0
AI-SO-173-04	N	08/03/89	1138		2.0 U	600.0 U	5.0 UWJ	0.38 LJ	1900 B	9.0 U	6.0 U	310.0
AI-SO-174-01	N	08/03/89	1149		2.0 U	1600.0 B	5.0 UWJ	0.20 UWJ	270 B	24.0	6.0 U	21.0
AI-SO-175-02	N	08/03/89	1308		2.2	1500.0 B	5.0 UEUJ	0.67	1900 B	10.0 B	6.0 U	300.0
AI-SO-175-02	WB	08/03/89	1315		2.0 U	600.0 U	5.0 UEJ	0.20 UWJ	210 U	9.0 U	6.0 U	5.0 U
AI-SO-182-05	N	08/04/89	1120		7.0	15000.0	5.0 UWJ	0.26	8900	110.0	6.0 U	6200.0
AI-SO-184-01	N	08/04/89	1510		120.0	600.0 U	5.0 UWJ	7.90	210 U	220.0	6.0 U	660000.0

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

Revision level: FINAL

WATER SOLUBLE METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LA8 NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-SD-186-01	N	08/04/89	1600	5	8-86780	MHS380	9400 EJ	19.0 U	20.0	31.0 8	6.4	2000.00 EJ
AI-SD-505-01	N	07/06/89	1025	1	8-86751	MHS351	6500 J	19.0 UUJ	3.7 WEJ	30.0 8	6.7	470.00 J
AI-SD-505-01	N	07/06/89	1030	1	8-86752	MHS352	6300 J	19.0 UUJ	4.9 EJ	25.0 8	6.3	520.00 J
AI-SD-505-01	WB	07/06/89	1035		8-86753	MHS353	41 UUJ	19.0 U	3.0 U	13.0 8	1.0 U	0.10 U
AI-SD-506-11	N	06/20/89	0935	4	8-86754	MHS354	41 UUJ	19.0 U	18.0 S	44.0 8	1.0 U	180.00
AI-SD-507-11	N	06/20/89	1715	2	8-86755	MHS355	41 UUJ	19.0 U	24.0	12.0 U	1.0 U	40.00
AI-SD-509-09	N	07/06/89	1000	4	8-86756	MHS356	710 J	19.0 U	29.0	12.0 U	1.6	4100.00
AI-SD-509-09	N	07/06/89	1010	4	8-86757	MHS357	930 J	19.0 U	23.0	17.0 8	1.7	4100.00
AI-SD-516-10	N	07/06/89	1200	2	8-86758	MHS358	120 8J	19.0 U	23.0	13.0 8	1.0 U	31.00
AI-SD-518-04	N	07/06/89	1330	8A	8-86759	MHS359	59 8J	19.0 U	9.5	37.0 8	1.0 U	330.00
AI-SD-518-04	N	07/06/89	1335	8A	8-86760	MHS360	250 J	19.0 U	9.3	63.0 8	1.0 U	330.00
AI-SD-606-09	N	06/29/89	0910	6C	8-86761	MHS361	41 UUJ	19.0 U	3.0 U	86.0 8	1.0 U	73.00
AI-SD-606-09	8FS	06/29/89	0915		8-86762	MHS362	80 8J	150.0	43.0 NJ	120.0 8	32.0	190.00
AI-SD-611-18	N	06/26/89	1830	2	8-86763	MHS363	120 8J	36.0 8	140.0 NJ	12.0 U	1.0 U	1.80
AI-SD-614-10	N	06/28/89	1110	8C	8-86764	MHS364	120 8J	19.0 U	3.0 UMUJ	69.0 8	1.0 U	6.30 S
AI-SD-614-10	R	06/28/89	1115	8C	8-86765	MHS365	41 UUJ	19.0 U	3.0 U	64.0 8	1.0 U	5.30 LJ
AI-SD-614-10	88	06/28/89	1120		8-86766	MHS366	41 UUJ	19.0 U	3.0 UMUJ	12.0 8	1.0 U	0.10 U

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, 8FS = blind field standard, WB = water blank (cross contamination blank), 88 = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

Revision level: FINAL

WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-SO-186-01	N	08/04/89	1600	450000	9.0 B	190.0	42000.0	2400.0 EJ	6.7	35000.0	29000.0
AI-SO-505-01	N	07/06/89	1025	220000	100.0	120.0	370000.0 J	160.0 EJ	0.4 UWEJ	290000.0 J	170000.0 J
AI-SO-505-01	N	07/06/89	1030	170000	79.0	130.0	300000.0 J	150.0 EJ	0.4 UWEJ	240000.0 J	120000.0 J
AI-SO-505-01	WB	07/06/89	1035	160 UE	9.0 B	26.0	6.0 UEN	18.0 BEJ	1.0 BWJ	170.0 U	9.0 B
AI-SO-506-11	N	06/20/89	0935	280000 E	14.0	30.0	6.0 BEN	34.0 BEJ	800.0	6300.0	34000.0
AI-SO-507-11	N	06/20/89	1715	1500 BE	18.0	19.0	300.0 ENJ	39.0 BEJ	10.0	170.0 U	790.0
AI-SO-509-09	N	07/06/89	1000	130000 E	23.0	73.0	410000.0 ENJ	180.0 EJ	5.4 S	19000.0	47000.0
AI-SO-509-09	N	07/06/89	1010	110000 E	25.0	66.0	330000.0 ENJ	71.0 BEJ	15.0 S	21000.0	64000.0
AI-SO-516-10	N	07/06/89	1200	22000 E	9.0 B	19.0	1800.0 ENJ	210.0 EJ	9.8 S	1800.0 B	790.0
AI-SO-518-04	N	07/06/89	1330	650000 E	8.0 U	17.0	100.0 ENJ	23.0 BEJ	0.4 UE	19000.0	4600.0
AI-SO-518-04	N	07/06/89	1335	390000 E	8.0 U	28.0	82.0 ENJ	12.0 UEU	0.4 UWEJ	17000.0	5200.0
AI-SO-606-09	N	06/29/89	0910	19000 E	8.0 U	35.0	270.0 ENJ	120.0 EJ	4.8 S	1200.0 8	5100.0
AI-SO-606-09	BFS	06/29/89	0915	160 UE	160.0	100.0	75.0 ENJ	170.0 EJ	150.0	170.0 U	210.0
AI-SO-611-18	N	06/26/89	1830	3400 BE	8.0 U	31.0	1700.0 ENJ	250.0 EJ	8.0	170.0 U	27.0
AI-SO-614-10	N	06/28/89	1110	22000 E	8.0 U	40.0	690.0 ENJ	110.0 EJ	0.4 UWUJ	420.0 B	370.0
AI-SO-614-10	R	06/28/89	1115	21000 E	8.0 U	17.0	610.0 ENJ	38.0 BEJ	0.4 UWUJ	460.0 B	360.0
AI-SO-614-10	BB	06/28/89	1120	160 UE	8.0 U	12.0	6.0 UEN	51.0 BEJ	0.6 8	170.0 U	12.0 B

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

Revision level: FINAL
WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-S0-186-01	N	06/04/89	1600		100.0	600.0 U	5.0 UEJ	0.78	210 U	520.0	6.0 U	670000.0
AI-S0-505-01	N	07/06/89	1025		120.0 NOJ	9500.0	5.0 UWNJ	29.00	28000	4700.0	6.0 U	150000.0
AI-S0-505-01	N	07/06/89	1030		120.0 NOJ	6500.0	5.0 UWNJ	30.00	25000	4700.0	6.0 U	160000.0
AI-S0-505-01	WB	07/06/89	1035		2.0 U	700.0 B	5.0 UWNJ	0.20 UEJ	210 U	12.0	6.0 U	15.0 B
AI-S0-506-11	N	06/20/89	0935		4.8	8200.0	5.0 U	5.10	5500	740.0	6.0 U	23000.0
AI-S0-507-11	N	06/20/89	1715		2.0 U	1800.0 B	5.0 UWNJ	1.00 LJ	210 U	28.0	11.0 B	14000.0
AI-S0-509-09	N	07/06/89	1000		49.0	1700.0 B	5.0 UEJ	6.90	540 B	1400.0	6.0 U	680000.0
AI-S0-509-09	N	07/06/89	1010		53.0	1300.0 B	5.0 UWNJ	7.00	460 B	1100.0	6.0 U	740000.0
AI-S0-516-10	N	07/06/89	1200		3.4	3000.0 B	5.0 UEJ	0.90 LJ	4300 B	17.0	13.0 B	7000.0
AI-S0-518-04	N	07/06/89	1330		36.0	13000.0	5.0 UEJ	0.20 UWNJ	4600 B	82.0	16.0 B	22000.0
AI-S0-518-04	N	07/06/89	1335		37.0	13000.0	5.0 UEJ	0.20 U	3800 B	95.0	18.0 B	25000.0
AI-S0-606-09	N	06/29/89	0910		5.5	7100.0	5.0 UWNJ	0.20 UWNJ	780 B	110.0	13.0 B	20000.0
AI-S0-606-09	BFS	06/29/89	0915		67.0	4200.0	57.5 S	42.00	55000	58.0	180.0	190.0
AI-S0-611-18	N	06/26/89	1830		2.8	1400.0 B	5.0 U	33.00	730 B	10.0 B	19.0 B	640.0
AI-S0-614-10	N	06/28/89	1110		2.0 U	8300.0	5.0 UWNJ	0.24 LJ	2900 B	11.0	6.0 U	610.0
AI-S0-614-10	R	06/28/89	1115		2.2	8300.0	5.0 UWNJ	0.20 U	2800 B	9.0 U	7.0 B	590.0
AI-S0-614-10	BB	06/28/89	1120		2.0 U	1100.0 B	5.0 UWNJ	0.20 UWNJ	210 U	9.0 U	17.0 B	5.0 B

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

Revision level: FINAL

WATER SOLUBLE METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM
AI-GW-GS-50	N	07/25/89	1000	8-78590		MHT990	200 BEJ	19.0 U	3.0 U	12.0 U	1.0 U	0.49 SE
AI-GW-GS-50	N	07/25/89	1005	8-78591		MHT991	160 BEJ	19.0 U	3.0 U	12.0 U	1.0 U	0.83 E
AI-GW-GS-50	N	07/25/89	1010	8-78592		MHT992	810 EJ	19.0 U	3.0 U	12.0 U	1.0 U	0.10 UWEJ
AI-GW-GS-50	N	07/27/89	0800	8-78593		MHT993	250 EJ	19.0 U	29.0 S	12.0 U	1.0 U	0.10 UELJ
AI-GW-GS-50	N	07/27/89	0805	8-78595		MHT995	230 EJ	19.0 U	51.0	12.0 U	1.0 U	0.10 UWEUJ
AI-GW-GS-50	BB	07/27/89	0806	8-78596		MHT996	140 BEJ	19.0 U	3.0 U	12.0 U	1.0 U	0.10 UWEUJ
AI-GW-GS-50	N	07/27/89	0807	8-78597		MHT997	320 EJ	19.0 U	37.0 S	12.0 U	1.0 U	0.10 UWEUJ
AI-GW-GS-50	N	07/27/89	0810	8-78594		MHT994	640 EJ	19.0 U	44.0	12.0 U	1.0 U	0.10 UUEJ
AI-GW-GS-50	N	07/27/89	1300	8-78598		MHT998	230 EJ	19.0 U	9.8	15.0 B	1.0 U	0.52 E
AI-GW-GS-50	R	07/27/89	1305	8-78599		MHT999	170 BEJ	19.0 U	9.3	12.0 U	1.0 U	0.51 E

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, WB = water blank (cross contamination blank), BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90

APPENDIX C-8: continued

Revision level: FINAL
WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE
AI-GW-GS-50	N	07/25/89	1000	2800 B	8.0 U	12.0	6.0 U	61.0 BEJ	0.4 UUJ	350.0 BEJ	16.0
AI-GW-GS-50	N	07/25/89	1005	2000 B	8.0 U	17.0	11.0 B	35.0 BEJ	0.4 UUJ	170.0 UEJ	34.0
AI-GW-GS-50	N	07/25/89	1010	2700 B	8.0 U	12.0	47.0	580.0 EJ	0.4 UUJ	440.0 BEJ	35.0
AI-GW-GS-50	N	07/27/89	0800	1400 B	8.0 U	18.0	6.0 U	240.0 EJ	0.4 UUJ	170.0 UEJ	13.0 B
AI-GW-GS-50	N	07/27/89	0805	1200 B	8.0 U	22.0	6.0 U	280.0 EJ	0.4 UJ	170.0 UEJ	22.0
AI-GW-GS-50	BB	07/27/89	0806	160 U	12.0	12.0	6.0 U	12.0 UEU	0.5 B	170.0 UEJ	8.0 B
AI-GW-GS-50	N	07/27/89	0807	600 B	8.0 U	17.0	6.0 U	290.0 EJE	0.9 B	170.0 UEJ	20.0
AI-GW-GS-50	N	07/27/89	0810	1200 B	8.0 U	12.0	6.0 U	420.0 EJ	0.9 B	170.0 UEJ	22.0
AI-GW-GS-50	N	07/27/89	1300	160 U	8.0 U	12.0	6.0 U	140.0 EJ	0.4 UUJ	170.0 UEJ	16.0
AI-GW-GS-50	R	07/27/89	1305	160 U	8.0 U	15.0	6.0 U	40.0 BEJ	0.4 UUJ	170.0 UEJ	11.0 B

NOTES: 1) Units are mg/Kg unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

APPENDIX C-8: continued

Revision level: FINAL
WATER SOLUBLE METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
AI-GW-GS-50	N	07/25/89	1000	0.00	2.0 U	3500.0 BEJ	5.0 UWNJ	0.20 UWJ	12000 EJ	13.0	6.0 U	83.0
AI-GW-GS-50	N	07/25/89	1005	0.00	2.0 U	2300.0 BEJ	5.0 UWNJ	0.20 UWJ	5400 EJ	9.0 U	6.0 U	70.0
AI-GW-GS-50	N	07/25/89	1010	0.00	2.9	4500.0 BEJ	5.0 UWNJ	0.20 U	14000 EJ	9.0 U	6.0 U	120.0
AI-GW-GS-50	N	07/27/89	0800	0.00	2.0 U	2200.0 BEJ	5.0 UWNJ	0.20 UWJ	9100 EJ	15.0	6.0 U	28.0
AI-GW-GS-50	N	07/27/89	0805	0.00	6.2	3000.0 BEJ	5.0 UENUJ	0.20 UWJ	9000 EJ	15.0	6.0 U	87.0
AI-GW-GS-50	BB	07/27/89	0806	0.00	2.0 U	600.0 UEU	5.0 UNJ	0.20 WJ	210 UEUJ	17.0	6.0 U	7.0 B
AI-GW-GS-50	N	07/27/89	0807	0.00	2.0 U	1600.0 BEJ	5.0 UNJ	0.20 UWJ	8400 EJ	15.0	6.0 U	20.0 B
AI-GW-GS-50	N	07/27/89	0810	0.00	2.0 U	2400.0 BEJ	5.0 UWEUJ	0.20 UWJ	8400 EJ	24.0	6.0 U	68.0
AI-GW-GS-50	N	07/27/89	1300	0.00	2.0 U	800.0 BEJ	5.0 UWNJ	0.20 U	5900 EJ	13.0	6.0 B	18.0 B
AI-GW-GS-50	R	07/27/89	1305	0.00	2.0 U	1600.0 BEJ	5.0 UWNJ	0.20 U	5300 EJ	10.0 B	7.0 B	27.0

- NOTES: 1) Units are mg/Kg unless otherwise noted.
2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPD, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
4) Blank values indicate parameters not determined or not reported.

APPENDIX C-9

EP Toxicity Data Base

03/12/90

Revision level: FINAL

EP TOXICITY METALS:

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	SAMPLE MATERIAL CODE	EPA TAG NUMBERS	LAB NUMBER	ARSENIC	BARIUM	CAESIUM	CHROMIUM	LEAD
AI-SO-100-03	N	06/13/89	0817	4	8-94437		293.0	112.0 BJ	43.8 NJ	5.5 U	1310.0 NJ
AI-SO-104-02	N	06/13/89	1009	4	8-94438		31.4	212.0 J	131.0 NJ	5.5 U	3310.0 NJ
AI-SO-123-01	N	06/15/89	1355	4	8-94440		9.6 B	80.5 BJ	110.0 NJ	5.5 U	33.2 BNJ
AI-SO-152-01	N	06/22/89	1615	2	8-94439		25.0	104.0 BJ	85.7 NJ	5.5 U	84.6 BNJ
AI-SO-179-01	N	08/04/89	0845	60	8-94441		161.0	207.0 J	10.8 NJ	5.5 U	71.3 BNJ
AI-SO-179-01	R	08/04/89	0850	60	8-94442		167.0	315.0 J	14.9 NJ	9.1 B	205.0 NJ
AI-SO-186-01	N	08/04/89	1600	5	8-94443		6.6 BJ	75.2 BJ	917.0 NJ	5.5 U	447.0 NJ
AI-SO-186-01	R	08/04/89	1607	5	8-94444		4.6 BJ	87.4 BJ	931.0 NJ	5.5 U	58.3 BNJ
AI-SO-505-01	N	07/06/89	1025	1	8-78113		3.1 BJ	95.8 BJ	300.0 NJ	5.5 B	25.4 UNUJ
AI-SO-506-11	N	06/20/89	0935	4	8-78121		26.6	30.6 BJ	339.0 NJ	5.5 U	17900.0 NJ
AI-SO-507-11	N	06/20/89	1715	2	8-78123		9.5 B	115.0 BJ	22.6 NJ	5.5 U	41.6 BNJ
AI-SO-509-09	N	07/06/89	1000	4	8-78125		9.3 B	71.8 BJ	1620.0 NJ	5.5 U	50.9 BNJ
AI-SO-509-09	R	07/06/89	1010	4	8-78127		10.0 B	64.4 BJ	2070.0 NJ	5.5 U	369.0 NJ
AI-SO-515-10	N	06/23/89	1125	4	8-78131		10.1	199.0 BJ	277.0 NJ	7.8 B	2660.0 NJ
AI-SO-518-04	N	07/06/89	1330	8A	8-78138		2.3 BJ	111.0 BJ	1030.0 NJ	5.7 B	25.4 UNUJ
AI-SO-518-04	R	07/06/89	1330		8-78140		6.7 B	109.0 BJ	1300.0 NJ	5.5 U	25.4 UNUJ
AI-SO-518-04	R	07/06/89	1340		8-78141		2.4 BJ	113.0 BJ	506.0 NJ	6.9 B	25.4 UNUJ
AI-SO-606-09	N	06/29/89	0910	6C	8-78144		5.4 BJ	154.0 BJ	43.9 NJ	5.5 U	25.4 UNUJ
AI-SO-611-18	N	06/26/89	1830	2	8-78146		10.6	117.0 BJ	1.6 UNUJ	5.5 U	25.4 UNUJ
AI-SO-614-10	N	06/28/89	1110	8C	8-78148		0.6 BJ	207.0 J	2.8 BNJ	5.5 U	25.4 UNUJ

NOTES: 1) Units are ug/L unless otherwise noted.

2) Sample types are defined as: N = natural sample, R = replicate, BFS = blind field standard, W8 = water blank (cross contamination blank), 8B = bottle blank.

3) Data-quality analysis codes are defined as: < = less than detection, 8 = value greater or equal to instrument detection limit but less than contract detection limit, D = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RP0, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported. , UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).

4) Blank values indicate parameters not determined or not reported.

03/12/90
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APPENDIX C-9: continued

Revision level: FINAL
EP TOXICITY METALS: continued

STATION	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	MERCURY	SELENIUM	SILVER	COMMENTS
AI-SO-100-03	N	06/13/89	0817	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-104-02	N	06/13/89	1009	0.86	1.1 U	6.70 UNUJ	
AI-SO-123-01	N	06/15/89	1355	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-152-01	N	06/22/89	1615	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-179-01	N	08/04/89	0845	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-179-01	R	08/04/89	0850	0.15 U	1.1 UNUJ	6.70 UNUJ	
AI-SO-186-01	N	08/04/89	1600	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-186-01	R	08/04/89	1607	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-505-01	N	07/06/89	1025	0.40	1.1 UNUJ	6.70 UNUJ	
AI-SO-506-11	N	06/20/89	0935	0.40	1.1 U	6.70 UNUJ	
AI-SO-507-11	N	06/20/89	1715	0.40	1.1 U	6.70 UNUJ	
AI-SO-509-09	N	07/06/89	1000	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-509-09	R	07/06/89	1010	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-515-10	N	06/23/89	1125	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-518-04	N	07/06/89	1330	0.25	1.1 U	6.70 UNUJ	
AI-SO-518-04	R	07/06/89	1330	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-518-04	R	07/06/89	1340	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-606-09	N	06/29/89	0910	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-611-18	N	06/26/89	1830	0.15 U	1.1 U	6.70 UNUJ	
AI-SO-614-10	N	06/28/89	1110	0.15 U	1.1 U	6.70 UNUJ	

- NOTES: 1) Units are ug/L unless otherwise noted.
- 2) Sample types are defined as: N = natural sample, R = replicate, KB = Kimwipe blank, BFS = blind field standard, WB = water blank, BB = bottle blank.
- 3) Data-quality analysis codes are defined as: < = less than detection, B = value greater or equal to instrument detection limit but less than contract detection limit, 0 = duplicate analysis was not within control limits, E = value estimated or not reported due to interference, I = no laboratory spike was determined, J = value useful only as estimate because quality control criteria were not met, L = correlation coefficient for method of standard addition was < 0.995, M = duplicate furnace injections > 20 RPO, N = spike sample recovery was not within control limits, R = value unuseable because quality control criteria were not met, S = value determined by method of standard addition, U = element analyzed for but not detected (The instrument detection limit is reported.), UJ = detection limit value useful only as an estimate because quality control criteria were not met, W = post digestion spike for furnace AA was not within control limits, Z = indicates value is anomalous based upon comparison with other data (data user code only).
- 4) Blank values indicate parameters not determined or not reported.

APPENDIX C-10

X-ray Diffraction Data Base

**SUMMARY OF X-RAY DIFFRACTION DATA FOR SURFACE MATERIAL
TAILINGS CONTAMINATED SOILS INVESTIGATION
AREA I OPERABLE UNIT PHASE II REMEDIAL INVESTIGATION**

Area	Sample No.	Lithologic Unit	Depth (feet)	MINERAL CONCENTRATION (%)														
				Potassium Feldspar	Plagioclase	Quartz	Mica/Illite	Jarosite	Gypsum	Pyrite	Sphalerite	Amphibole	Magnetite	Chlorite	Kaolinite	Clay(s)	Alum-group	
Area West of Colorado Tallings	100-01	4	0.0-0.1	15	18	25	7		18	5				7				
	111-01	6A/C	0.0-0.1	20	20	30	<10		7						<5			
Manganese Stockpile	505-01	1	0.0-0.1	21	27	27			11	<5			<10				<5	
Manganese Stockpile	116-01	2	0.0-0.1	<5		45	40		<5	5							<5	
Manganese Stockpile	184-01	2	0.0-0.1	5	<5	45	20	25										<5
Manganese Stockpile	151-01	5	0.0-0.2	12	<5	25	22	25								7		
Manganese Stockpile	185-01	5	0.0-0.1	10		30	15	20	<5	<5					10		<10	
Manganese Stockpile	186-01	5	0.0-0.3	10	<5	45	20		<5	9	<5		<5			<5		
Lower Metro Storm Drain	176-01	5	0.0-0.1		<5	53	30	7										

Percents do not always add up to 100 since amorphous material is not distinguished on the XRD pattern.

MINERAL CONCENTRATION(%)

MINERAL CONCENTRATION(%)

SUMMARY OF X-RAY DIFFRACTION DATA FOR SUBSURFACE MATERIAL
TAILINGS CONTAMINATED SOILS INVESTIGATION
AREA I OPERABLE UNIT PHASE II REMEDIAL INVESTIGATION

				MINERAL CONCENTRATION (%)																		
Area	Sample No.	Lithologic Unit	Depth (feet)	Potassium Feldspar	Plagioclase Feldspar	Quartz	Mica/Illite	Jarosite	Gypsum	Pyrite	Sphalerite	Amphibole	Calcite	Siderite	Smithsonite	Magnetite	Chlorite	Clay(s)	Alpha-Iron	Dolomite	Cryptomelane	Bixbyite
Upper Metro Storm Drain	611-18	2	22.0-26.5	<5		80	10	<5														
Upper Metro Storm Drain	606-09	6C	2.0-5.5			20													80			
Upper Metro Storm Drain	614-10	8C	12.0-20.0	26	21	31	11							<5		<5				<5		
Upper Metro Storm Drain	GW-GS-50	8C	162-164	25	20	30	10											10				
Upper Metro Storm Drain	GW-GS-50	8C	166-167	35	30	25	<10															
Upper Metro Storm Drain	GW-GS-50	8C	168-170	15	15	20	25											<10				
Upper Metro Storm Drain	GW-GS-50	8C	242-244	24	31	25	<10					<10				<5						
Upper Metro Storm Drain	GW-GS-50	8C	245	15	25	25	20							<5		5				<5		
Upper Metro Storm Drain	GW-GS-50	8C	244-248	16	16	25	16										12					
Upper Metro Storm Drain	GW-GS-50	8C	270	20	40	15	12					8		<5								

APPENDIX C-11

Bulk Density Data Base

**BULK DENSITY DETERMINATIONS
IMPOUNDED TAILINGS
SILVER BOW CREEK, PHASE II REMEDIAL INVESTIGATION**

SAMPLE NO.	DEPTH (feet)	DATE	TIME	DENSITY (gm/cm ³)
500-10	0.5-2.5	07/06/89	0800	1.64
507-10	2.0-4.0	07/06/89	0910	1.77
508-04	0.3-2.3	06/21/89	1600	1.95
516-03	2.0-4.0	06/22/89	1340	1.83
517-02A	0.5-2.5	06/23/89	1340	1.87
618-12	2.5-4.5	06/26/89	1137	1.59
619-08	2.5-4.5	06/29/89	1505	1.76
619-10	5.0-7.0	06/29/89	1515	1.64

APPENDIX C-12

Acid-Base Account Data Base

Appendix C-12: Acid-Base Account, Neutralization Potential, and SMP Lime Requirements

SULPHUR RESULTS											
Sample Location	Date Sampled	EPA Tag No.	Sample Type ^(a)	pH (s.u.)	SC (μmhos/cm)	Hot Water Extractable %	HCL ^(b) Extractable %	HNO ₃ Extractable %	Residual %	Neutralization Potential (tons CaCO ₃ /1000 tons)	SMP Lime Requirement (tons CaCO ₃)
AI-SD-145-01	06/22/89	8-12385	N	7.2	2.00	0.09	-0.06R	0.157	0.033	25.2	<0.3
AI-SD-145-01	06/22/89	8-12385	R			0.08	0.08	0.176	0.014		
AI-SD-145-01	06/22/89	8-12385	R			0.10	<0.001	0.10	0.08		
AI-SD-173-01	08/03/89	8-12386	N	7.0	7.40	3.13	0.59	0.27	0.11	7.5	<0.3
AI-SD-177-01	08/03/89	8-12392	N	4.0	11.7	1.49	0.24	0.06	0.11	-3.1	14.0
AI-SD-177-01	08/03/89	8-12388	D	3.9	15.9	2.35	0.39	0.09	0.10	-5.1	13.2
AI-SD-173-02	06/13/89	8-12389	N	5.4	3.08	0.24	0.05	0.29	0.07	2.3	1.2
AI-SD-145-02	06/22/89	8-12390	N	7.2	2.17	0.08	0.03	0.053	0.067	34.7	<0.3
AI-SD-121-02	06/15/89	8-12391	N	6.0	4.64	0.46	0.04	0.089	0.051	2.8	3.7
AI-SD-128-01	06/16/89	8-12392	N	4.2	10.4	1.79	-0.02R	0.612	0.068	-0.14	1.2
AI-SD-128-01	06/16/89	8-12392	D			1.73	0.03	0.541	0.009	1.47	1.2
AI-SD-128-01	06/16/89	8-12392	R			1.72	0.10	0.492	0.008		
AI-SD-128-01	06/16/89	8-12393	N	4.2	10.6	1.72	-0.06R	0.731	0.079	1.9	1.2
AI-SD-128-01	06/16/89	8-12393	D			1.87	-0.04R	0.626	0.014		
AI-SD-128-01	06/16/89	8-12393	D			1.89	-0.03R	0.62	<0.007		
AI-SD-121-01	06/15/89	8-12394	N	5.4	15.1	2.41	0.27	0.694	0.050	-1.5	3.7
AI-SD-102-02	06/13/89	8-12395	N	4.9	2.96	0.13	2.41	0.16	0.048	-2.0	4.6
AI-SD-102-01	06/13/89	8-12395	N	2.2	16.3	1.11	0.13	1.20	0.12	-9.8	>18.4

(a) N - natural sample

R - re-analyzed sample

D - field duplicate

(b) Data - quality validation codes are defined as:

R = value unuseable because quality control criteria were not met.

APPENDIX C-13

Organic Compounds Data Base

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

SAMPLE I.D.	AI-SD-160-01	AI-SD-161-01	AI-SD-161-01	AI-SD-161-02	AI-SD-161-03	AI-SD-161-03
SAMPLE DATE	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
SAMPLE TIME	930	1031	1100	1113	1123	1140
SAMPLERS						
EPA Tag Nos.	8-93802, 8-93803	8-93805, 8-93806	8-93814, 8-93815	8-93817, 8-93818	8-93820, 8-93821	8-93823, 8-93824
SPECIFIC CONDUCTANCE						
pH						
EH						
CASE #	12196	12196	12196	12196	12196	12196
SAMPLE METHOD	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE
SAMPLE TYPE	N	N	T8	N	N	UB
UTR #	HC402	HC403	HC404	HC405	HC406	HC407
COMPONENT						

CAS NO.

VOLATILE COMPOUNDS

74-87-3	Chloromethane	12 U	21 U	100 U	53 U	52 U	10 U
74-83-9	Bromomethane	12 U	21 U	100 U	53 U	52 U	10 U
75-01-4	Vinyl Chloride	12 U	21 U	100 U	53 U	52 U	10 U
75-00-3	Chloroethane	12 U	21 U	100 U	53 U	52 U	10 U
75-09-2	Methylene Chloride	6 U	3 J	38 RJ	27 U	26 U	8
67-64-1	Acetone	12 U	21 U	100 U	53 U	52 U	10 U
75-15-0	Carbon Disulfide	6 U	10 U	50 U	27 U	26 U	5 U
75-35-4	1,1-Dichloroethene	6 U	10 U	50 U	27 U	26 U	5 U
75-34-3	1,1-Dichloroethane	6 U	10 U	50 U	27 U	26 U	5 U
540-59-8	1,2-Dichloroethene (total)	6 U	10 U	50 U	27 U	26 U	5 U
67-66-3	Chloroform	6 U	10 U	50 U	27 U	26 U	1 J
107-86-2	1,2-Dichloroethane	6 U	10 U	50 U	27 U	26 U	5 U
78-93-3	2-Butanone	12 U	21 U	49 J	53 U	52 U	10 U
71-55-6	1,1,1-Trichloroethane	6 U	10 U	50 U	27 U	26 U	5 U
56-23-5	Carbon Tetrachloride	6 U	10 U	50 U	27 U	26 U	5 U
108-85-4	Vinyl Acetate	12 U	21 U	100 U	53 U	52 U	10 U
75-27-4	Bromodichloromethane	6 U	10 U	50 U	27 U	26 U	5 U
78-87-5	1,2-Dichloropropane	6 U	10 U	50 U	27 U	26 U	5 U
10061-82-6	Trans-1,3-Dichloropropene	6 U	10 U	50 U	27 U	26 U	5 U
79-81-6	Trichloroethene	6 U	10 U	50 U	27 U	26 U	5 U
124-48-1	Dibromochloromethane	6 U	10 U	50 U	27 U	26 U	5 U
79-00-5	1,1,2-Trichloroethane	6 U	10 U	50 U	27 U	26 U	5 U
71-43-2	Benzene	6 U	10 U	50 U	27 U	26 U	5 U
10061-81-5	cis-1,3-Dichloropropene	6 U	10 U	50 U	27 U	26 U	5 U
118-75-8	2-Chloroethylvinylether						
75-25-2	Bromoform	6 U	10 U	50 U	27 U	26 U	10 U
591-78-6	2-Hexanone	12 U	21 U	100 U	53 U	52 U	10 U
108-10-1	4-Methyl-2-Pentanone	12 U	21 U	100 U	53 U	52 U	10 U
127-18-4	Tetrachloroethene	6 U	10 U	50 U	27 U	26 U	5 U
79-34-5	1,1,2,2-Tetrachloroethane	6 U	10 U	50 U	27 U	26 U	5 U
108-88-3	Toluene	6 U	4 J	50 U	12 J	29	2 J
108-90-7	Chlorobenzene	6 U	10 U	50 U	27 U	26 U	5 U
108-41-4	Ethylbenzene	6 U	5 J	50 U	17 J	50	5 U
100-42-5	Styrene	6 U	10 U	50 U	27 U	26 U	5 U
1330-20-7	Total Xylenes	4 J	230	50 U	670	1990 E	5 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	SAMPLE I.D.	AI-SD-161-81	AI-SD-161-81	AI-SD-161-81	AI-SD-161-82	AI-SD-161-83	AI-SD-161-83
	SAMPLE DATE	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
	SAMPLE TIME	938	1031	1100	1113	1123	1140
SEMI-VOLATILE COMPOUNDS							
108-95-2	Phenol	210 J	14000 U	660 U	14000 U	17000 U	91 U
111-44-4	bis(2-Chloroethyl)Ether	780 U	14000 U	660 U	14000 U	17000 U	91 U
95-57-8	2-Chlorophenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
541-73-1	1,3-Dichlorobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U
106-46-7	1,4-Dichlorobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U
100-51-6	Benzyl Alcohol	780 U	14000 U	660 U	14000 U	17000 U	91 U
95-58-195-58-1	2-Dichlorobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U
95-48-7	2-Methylphenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
3838-32-9	bis(2-Chloroisopropyl)Ether	780 U	14000 U	660 U	14000 U	17000 U	91 U
106-44-5	4-Methylphenol	780 UJ	14000 U	660 U	14000 U	17000 U	91 U
621-64-7	N-Nitroso-Di-n-Propylamine	780 U	14000 UJ	660 UJ	14000 UJ	17000 UJ	91 UJ
67-72-1	Hexachloroethane	780 U	14000 U	660 U	14000 U	17000 U	91 U
98-95-3	Nitrobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U
78-59-1	Isophorone	780 U	14000 U	660 U	14000 U	17000 U	91 U
88-75-5	2-Nitrophenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
105-67-9	2,4-Dimethylphenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
65-85-0	Benzoic Acid	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
111-91-1	bis(2-Chloroethoxy)Methane	780 U	14000 U	660 U	14000 U	17000 U	91 U
128-83-2	2,4-Dichlorophenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
128-82-1	1,2,4-Trichlorobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U
91-28-3	Naphthalene	780 U	10000 J	660 U	15800	18000	91 U
106-47-8	4-Chloroaniline	780 U	14000 U	660 U	14000 U	17000 U	91 U
87-68-3	Hexachlorobutadiene	780 U	14000 U	660 U	14000 U	17000 U	91 U
59-58-7	4-Chloro-3-Methylphenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
91-57-6	2-Methylnaphthalene	580 UJ	120000 B	660 U	180000 B	240000 B	91 U
77-47-4	Hexachlorocyclopentadiene	780 UJ	14000 UJ	660 UJ	14000 UJ	17000 UJ	91 UJ
88-46-2	2,4,6-Trichlorophenol	780 U	14000 U	660 U	14000 U	17000 U	91 U
95-93-4	2,4,5-Trichlorophenol	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
91-58-7	2-Chloronaphthalene	780 U	14000 U	660 U	14000 U	17000 U	91 U
88-74-4	2-Nitroaniline	3800 UJ	66000 UJ	3200 UJ	68000 UJ	83000 UJ	450 UJ
131-11-3	Dimethyl Phthalate	780 U	14000 U	660 U	14000 U	17000 U	91 U
288-96-8	Acenaphthylene	780 U	14000 U	660 U	14000 U	17000 U	91 U
99-89-2	3-Nitroaniline	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
83-32-9	Acenaphthene	780 U	7800 J	660 U	12000 J	14000 J	91 U
51-28-5	2,4-Dinitrophenol	3800 UJ	66000 UJ	3200 UJ	68000 UJ	83000 UJ	450 UJ
100-82-7	4-Nitrophenol	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
132-64-9	Dibenzofuran	780 U	5800 U	660 U	7900 J	11000 J	91 U
121-14-2	2,4-Dinitrotoluene	780 U	14000 U	660 U	14000 U	17000 U	91 U
486-28-2	2,6-Dinitrotoluene	780 U	14000 U	660 U	14000 U	17000 U	91 U
84-66-2	Diethylphthalate	780 UJ	14000 UJ	660 UJ	14000 UJ	17000 UJ	91 UJ
7005-72-3	4-Chlorophenyl-phenylether	780 U	14000 U	660 U	14000 U	17000 U	91 U
84-73-7	Fluorene	780 U	7400 J	660 U	14000	19000	91 U
100-18-6	4-Nitroaniline	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
534-52-1	4,6-Dinitro-2-Methylphenol	3800 U	66000 U	3200 U	68000 U	83000 U	450 U
86-38-6	N-Nitrosodiphenylamine (1)	780 U	3800 J	660 U	8400 J	12000 J	91 U
101-55-3	4-Bromophenyl-phenylether	780 U	14000 U	660 U	14000 U	17000 U	91 U
118-74-1	Hexachlorobenzene	780 U	14000 U	660 U	14000 U	17000 U	91 U

1/31/1998

PAGE 3 of 3

Set 1

Rev. 1

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	AI-SD-161-01	AI-SD-161-01	AI-SD-161-01	AI-SD-161-02	AI-SD-161-03	AI-SD-161-03
	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
	930	1031	1100	1113	1123	1140
SAMPLE I.D.						
SAMPLE DATE						
SAMPLE TIME						
87-86-5	Pentachlorophenol	3800 U	4200 J	7200 U	9700 U	450 U
85-81-8	Phenanthrene	780 U	1400 U	2000 U	3200 U	91 U
128-12-7	Anthracene	780 U	1400 U	1400 U	4800 J	91 U
84-74-2	Di-n-Butylphthalate	780 U	6200 BJ	5500 BJ	5000 BJ	91 U
26-44-8	Fluoranthene	780 U	1400 U	1400 U	1700 U	91 U
129-80-8	Pyrene	780 U	1600 J	3100 J	4800 J	91 U
85-68-7	Butylbenzylphthalate	780 U	1400 U	1400 U	1700 U	91 U
91-94-1	3,3'-Dichlorobenzidine	1600 U	2700 U	2800 U	3400 U	180 U
56-55-3	Benzo(a)Anthracene	780 U	1400 U	1400 U	1700 U	91 U
117-18-7	bis(2-Ethylhexyl)Phthalate	238 BJ	3800 BJ	3800 BJ	3700 BJ	39 BJ
218-81-9	Chrysene	780 U	1400 U	1400 U	1700 U	91 U
117-84-8	Di-n-Octyl Phthalate	780 U	1400 U	1400 U	1700 U	91 U
285-99-2	Benzo(b)Fluoranthene	780 U	1400 U	1400 U	1700 U	91 U
287-88-9	Benzo(k)Fluoranthene	780 U	1400 U	1400 U	1700 U	91 U
58-32-8	Benzo(a)Pyrene	780 U	1400 U	1400 U	1700 U	91 U
193-39-5	Indeno(1,2,3-cd)Pyrene	780 U	1400 U	1400 U	1700 U	91 U
53-78-3	Dibenzo(a,h)Anthracene	780 U	1400 U	1400 U	1700 U	91 U
191-24-2	Benzo(g,h,i)Perylene	780 U	1400 U	1400 U	1700 U	91 U

UNDILUTED PESTICIDE/PCBS						
319-84-6	Alpha-BHC	93 U	83 U	170 U	170 U	2.3 U
319-85-7	Beta-BHC	93 U	83 U	170 U	170 U	2.3 U
319-86-8	Delta-BHC	93 U	83 U	170 U	170 U	2.3 U
58-89-9	Gamma-BHC(Lindane)	93 U	83 U	170 U	170 U	2.3 U
76-44-8	Heptachlor	93 U	83 U	170 U	170 U	2.3 U
389-80-2	Aldrin	93 U	83 U	170 U	170 U	2.3 U
1024-57-3	Heptachlor Epoxide	93 U	83 U	170 U	170 U	2.3 U
959-98-8	Endosulfan I	93 U	83 U	170 U	170 U	2.3 U
68-57-1	Dieldrin	190 U	170 U	340 U	330 U	4.6 U
72-55-9	4,4'-DDE	190 U	170 U	340 U	330 U	4.6 U
72-28-8	Endrin	190 U	170 U	340 U	330 U	4.6 U
33213-65-9	Endosulfan II	190 U	170 U	340 U	330 U	4.6 U
72-54-8	4,4'-DDD	190 U	170 U	340 U	330 U	4.6 U
1931-47-8	Endosulfan Sulfate	190 U	170 U	340 U	330 U	4.6 U
58-29-3	4,4'-DDT	190 U	170 U	340 U	330 U	4.6 U
72-43-5	Methoxychlor	930 U	830 U	1700 U	1700 U	23 U
53494-78-5	Endrin Ketone	190 U	170 U	340 U	330 U	4.6 U
57-74-9	Chlordane					
5103-71-9	Chlordane-alpha	930 U	830 U	1700 U	1700 U	23 U
5103-74-2	Chlordane-gamma	930 U	830 U	1700 U	1700 U	23 U
8801-35-2	Toxaphene	1900 U	1700 U	3400 U	3300 U	46 U
12674-11-2	Aroclor-1816	930 U	830 U	1700 U	1700 U	23 U
11104-28-2	Aroclor-1221	930 U	830 U	1700 U	1700 U	23 U
11141-16-5	Aroclor-1232	930 U	830 U	1700 U	1700 U	23 U
53469-21-9	Aroclor-1242	930 U	830 U	1700 U	1700 U	23 U
12672-29-6	Aroclor-1248	930 U	830 U	1700 U	1700 U	23 U
11897-69-1	Aroclor-1254	1900 U	1700 U	3400 U	3300 U	46 U
11896-82-5	Aroclor-1260	1900 U	1700 U	3400 U	3300 U	46 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

FIELD DATA	AI-SD-162-81	AI-SD-162-81	AI-SD-162-81	AI-SD-162-82	AI-SD-162-82	AI-SD-162-83	AI-SD-162-81
SAMPLE I.D.	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
SAMPLE DATE	1412	1415	1424	1429	1436	1502	1502
SAMPLE TIME							
SAMPLERS							
ERA Tag Nos.	8-93826, 8-93827	8-93829, 8-93730	8-93832, 8-93833	8-93835, 8-93836	8-93838, 8-93839	8-93841, 8-93842	
SPECIFIC CONDUCTANCE							
pH							
EH							
CASE #							
SAMPLE METHOD							
SAMPLE TYPE							
QTR #							
CAS NO.							
COMPONENT							

VOLATILE COMPOUNDS

74-87-3	Chloromethane	11 U	10 U	11 U	11 U	11 U	12 U
74-83-9	Bromomethane	11 U	10 U	11 U	11 U	11 U	12 U
75-81-4	Vinyl Chloride	11 U	10 U	11 U	11 U	11 U	12 U
75-80-3	Chloroethane	11 U	10 U	11 U	11 U	11 U	12 U
75-89-2	Methylene Chloride	4 BJ	8	4 BJ	4 BJ	3 BJ	3 BJ
67-64-1	Acetone	11 U	10 U	11 U	11 U	11 U	12 U
75-15-8	Carbon Disulfide	5 U	5 U	6 U	6 U	6 U	6 U
75-35-4	1,1-Dichloroethene	5 U	5 U	6 U	6 U	6 U	6 U
75-34-3	1,1-Dichloroethane	5 U	5 U	6 U	6 U	6 U	6 U
540-59-8	1,2-Dichloroethene (total)	5 U	5 U	6 U	6 U	6 U	6 U
67-66-3	Chloroform	5 U	11	6 U	6 U	6 U	6 U
107-46-2	1,2-Dichloroethane	5 U	5 U	6 U	6 U	6 U	6 U
78-93-3	2-Butanone	11 UJ	4 J	11 UJ	11 UJ	11 UJ	12 UJ
71-55-6	1,1,1-Trichloroethane	5 U	1 J	6 U	6 U	6 U	6 U
56-23-5	Carbon Tetrachloride	5 U	5 U	6 U	6 U	6 U	6 U
108-85-4	Vinyl Acetate	11 U	10 U	11 U	11 U	11 U	12 U
75-27-4	Bromodichloromethane	5 U	1 U	6 U	6 U	6 U	6 U
78-87-5	1,2-Dichloropropane	5 U	5 J	6 U	6 U	6 U	6 U
10861-82-6	Trans-1,3-Dichloropropene	5 U	5 U	6 U	6 U	6 U	6 U
79-81-6	Trichloroethene	5 U	5 U	6 U	6 U	6 U	6 U
124-48-1	Dibromochloromethane	5 U	5 U	6 U	6 U	6 U	6 U
79-80-5	1,1,2-Trichloroethane	5 U	5 U	6 U	6 U	6 U	6 U
71-43-2	Benzene	5 U	5 U	6 U	6 U	6 U	6 U
10861-81-5	cis-1,3-Dichloropropene	5 U	5 U	6 U	6 U	6 U	6 U
118-75-8	2-Chloroethylvinylether						
75-25-2	Bromoform	5 U	5 U	6 U	6 U	6 U	6 U
591-78-6	2-Hexanone	11 U	1 J	11 U	11 U	11 U	12 U
108-10-1	4-Methyl-2-Pentanone	11 U	10 U	11 U	11 U	11 U	12 U
127-18-4	Tetrachloroethene	5 U	5 U	6 U	6 U	6 U	6 U
79-34-5	1,1,2,2-Tetrachloroethane	5 U	5 U	6 U	6 U	6 U	6 U
108-88-3	Toluene	5 U	2 J	6 U	6 U	6 U	6 U
108-98-7	Chlorobenzene	5 U	5 U	6 U	6 U	6 U	6 U
108-41-4	Ethylbenzene	5 U	5 U	6 U	6 U	6 U	6 U
100-42-5	Styrene	5 U	5 U	6 U	6 U	6 U	6 U
1328-28-7	Total Xylenes	5 U	5 U	6 U	6 U	6 U	6 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	AI-SD-162-81	AI-SD-162-81	AI-SD-162-82	AI-SD-162-82	AI-SD-162-83	AI-SD-163-81
SAMPLE I.D.	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
SAMPLE DATE	1412	1415	1424	1429	1436	1502
SAMPLE TIME						
SEMI-VOLATILE COMPOUNDS						
108-95-2 Phenol	698 U	138 U	728 U	728 U	738 U	778 U
111-44-4 bis(2-Chloroethyl)Ether	698 U	138 U	728 U	728 U	738 U	778 U
95-57-8 2-Chlorophenol	698 U	138 U	728 U	728 U	738 U	778 U
541-73-1 1,3-Dichlorobenzene	698 U	138 U	728 U	728 U	738 U	778 U
186-46-7 1,4-Dichlorobenzene	698 U	138 U	728 U	728 U	738 U	778 U
188-51-6 Benzyl Alcohol	698 UJ	138 U	728 U	728 UJ	738 UJ	778 UJ
95-58-1 1,2-Dichlorobenzene	698 U	138 U	728 U	728 U	738 U	778 U
95-48-7 2-Methylphenol	698 U	138 U	728 U	728 U	738 U	778 U
39-638-32-9 bis(2-Chloroisopropyl)Ether	698 U	138 U	728 U	728 U	738 U	778 U
186-44-5 4-Methylphenol	698 U	138 U	728 U	728 U	738 U	778 U
621-64-7 N-Nitroso-Di-n-Propylamine	698 UJ	138 UJ	728 UJ	728 UJ	738 UJ	778 UJ
67-72-1 Hexachloroethane	698 U	138 U	728 U	728 U	738 U	778 U
98-95-3 Nitrobenzene	698 U	138 U	728 U	728 U	738 U	778 U
78-59-1 Isophorone	698 U	138 U	728 U	728 U	738 U	778 U
88-75-5 2-Nitrophenol	698 U	138 U	728 U	728 U	738 U	778 U
185-67-9 2,4-Dimethylphenol	698 U	138 U	728 U	728 U	738 U	778 U
65-85-8 Benzoic Acid	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
111-91-1 bis(2-Chloroethoxy)Methane	698 U	138 U	728 U	728 U	738 U	778 U
128-83-2 2,4-Dichlorophenol	698 U	138 U	728 U	728 U	738 U	778 U
128-82-1 1,2,4-Trichlorobenzene	698 U	138 U	728 U	728 U	738 U	778 U
91-28-3 Naphthalene	98 J	138 U	728 U	728 U	738 U	778 U
186-47-8 4-Chloroaniline	698 U	138 U	728 U	728 U	738 U	778 U
87-68-3 Hexachlorobutadiene	698 U	138 U	728 U	728 U	738 U	778 U
59-58-7 4-Chloro-3-Methylphenol	698 U	138 U	728 U	728 U	738 U	778 U
91-57-6 2-Methylnaphthalene	1288	138 U	728 U	728 U	738 UJ	778 UJ
77-47-4 Hexachlorocyclopentadiene	698 UJ	138 U	728 U	728 U	738 U	778 U
88-86-2 2,4,6-Trichlorophenol	698 U	138 U	728 U	728 U	738 U	778 U
95-95-4 2,4,5-Trichlorophenol	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
91-58-7 2-Chloronaphthalene	698 U	138 U	728 U	728 U	738 U	778 U
88-74-4 2-Nitroaniline	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
131-11-3 Dimethyl Phthalate	698 U	138 U	728 U	728 U	738 U	778 U
288-96-8 Acenaphthylene	698 U	138 U	728 U	728 U	738 U	778 U
99-89-2 3-Nitroaniline	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
83-32-9 Acenaphthene	698 U	138 U	728 U	728 U	738 U	778 U
51-28-5 2,4-Dinitrophenol	3388 UJ	678 U	3588 UJ	3588 UJ	3588 UJ	3788 UJ
186-42-7 4-Nitrophenol	338 U	678 U	3588 U	3588 U	3588 U	3788 U
132-64-9 Dibenzofuran	698 U	138 U	728 U	728 U	738 U	778 U
121-14-2 2,4-Dinitrotoluene	698 U	138 U	728 U	728 U	738 U	778 U
686-28-2 2,6-Dinitrotoluene	698 U	138 U	728 U	728 U	738 U	778 U
84-66-2 Diethylphthalate	698 U	138 U	728 U	728 U	738 U	778 U
7885-72-3 4-Chlorophenyl-phenylether	698 U	138 U	728 U	728 U	738 U	778 U
86-73-7 Fluorene	698 U	138 U	728 U	728 U	738 U	778 U
188-18-6 4-Nitroaniline	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
534-52-1 4,6-Dinitro-2-Methylphenol	3388 U	678 U	3588 U	3588 U	3588 U	3788 U
86-38-6 N-Nitrosodiphenylamine (1)	698 U	138 U	728 U	728 U	738 U	778 U
181-55-3 4-Bromophenyl-phenylether	698 U	138 U	728 U	728 U	738 U	778 U
118-74-1 Hexachlorobenzene	698 U	138 U	728 U	728 U	738 U	778 U

1/31/1998

PAGE 3 of 3
Set 2
Rev. 1COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	SAMPLE I.D.	AI-SD-162-81	AI-SD-162-81	AI-SD-162-82	AI-SD-162-82	AI-SD-162-83	AI-SD-163-81
	SAMPLE DATE	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
	SAMPLE TIME	1412	1415	1424	1429	1436	1502
87-86-5	Pentachlorophenol	398 J	678 U	3588 U	3588 U	3588 U	3788 U
85-81-8	Phenanthrene	698 U	138 U	728 U	728 U	738 U	778 U
128-12-7	Anthracene	698 U	138 U	728 U	728 U	738 U	778 U
84-74-2	Di-n-Butylphthalate	1288 B	61 B	448 B	448 B	488 B	448 B
286-44-8	Fluoranthene	698 U	138 U	728 U	728 U	738 U	778 U
129-80-8	Pyrene	698 U	138 U	728 U	728 U	738 U	778 U
85-68-7	Butylbenzylphthalate	698 U	138 U	728 U	728 U	738 U	778 U
91-94-1	3,3'-Dichlorobenzidine	1488 U	278 U	1488 U	1488 U	1588 U	1588 U
56-53-3	Benzo(a)Anthracene	698 U	138 U	728 U	728 U	738 U	778 U
117-18-7	bis(2-Ethylhexyl)Phthalate	248 B	37 B	218 B	168 B	188 B	638 B
218-81-9	Chrysene	698 U	138 U	728 U	728 U	738 U	778 U
117-84-8	Di-n-Octyl Phthalate	698 U	138 U	728 U	728 U	738 U	778 U
285-99-2	Benzo(b)Fluoranthene	698 U	138 U	728 U	728 U	738 U	778 U
287-88-9	Benzo(k)Fluoranthene	698 U	138 U	728 U	728 U	738 U	778 U
58-32-8	Benzo(a)Pyrene	698 U	138 U	728 U	728 U	738 U	778 U
193-39-5	Indeno(1,2,3-cd)Pyrene	698 U	138 U	728 U	728 U	738 U	778 U
53-78-3	Dibenz(a,h)Anthracene	698 U	138 U	728 U	728 U	738 U	778 U
191-24-2	Benzo(g,h,i)Perylene	698 U	138 U	728 U	728 U	738 U	778 U
***** UNDILUTED PESTICIDE/PCBS *****							
319-84-6	Alpha-BHC	83 U	1.7 U	87 U	87 U	88 U	94 U
319-85-7	Beta-BHC	83 U	1.7 U	87 U	87 U	88 U	94 U
319-86-8	Delta-BHC	83 U	1.7 U	87 U	87 U	88 U	94 U
58-89-9	Gamma-BHC(Lindane)	83 U	1.7 U	87 U	87 U	88 U	94 U
76-44-8	Heptachlor	83 U	1.7 U	87 U	87 U	88 U	94 U
389-88-2	Allrin	83 U	1.7 U	87 U	87 U	88 U	94 U
1824-57-3	Heptachlor Epoxide	83 U	1.7 U	87 U	87 U	88 U	94 U
959-98-8	Endosulfan I	83 U	1.7 U	87 U	87 U	88 U	94 U
68-57-1	Dieldrin	178 U	3.3 U	178 U	178 U	188 U	198 U
72-55-9	4,4'-DDE	178 U	3.3 U	178 U	178 U	188 U	198 U
72-28-8	Endrin	178 U	3.3 U	178 U	178 U	188 U	198 U
33213-65-9	Endosulfan II	178 U	3.3 U	178 U	178 U	188 U	198 U
72-54-8	4,4'-DDD	178 U	3.3 U	178 U	178 U	188 U	198 U
1831-47-8	Endosulfan Sulfate	178 U	3.3 U	178 U	178 U	188 U	198 U
58-29-3	4,4'-DDT	178 U	3.3 U	178 U	178 U	188 U	198 U
72-43-5	Methoxychlor	838 U	17 U	878 U	878 U	888 U	948 U
53494-78-5	Endrin Ketone	178 U	3.3 U	178 U	178 U	188 U	198 U
57-74-9	Chlordane	838 U	17 U	878 U	878 U	888 U	948 U
5183-71-9	Chlordane-alpha	838 U	17 U	878 U	878 U	888 U	948 U
5183-74-2	Chlordane-gamma	1788 U	33 U	1788 U	1788 U	1888 U	1988 U
6881-35-2	Toxaphene	838 U	17 U	878 U	878 U	888 U	948 U
12674-11-2	Aroclor-1816	838 U	17 U	878 U	878 U	888 U	948 U
11184-28-2	Aroclor-1221	838 U	17 U	878 U	878 U	888 U	948 U
11141-16-5	Aroclor-1232	838 U	17 U	878 U	878 U	888 U	948 U
53469-21-9	Aroclor-1242	838 U	17 U	878 U	878 U	888 U	948 U
12672-29-6	Aroclor-1248	838 U	17 U	878 U	878 U	888 U	948 U
11897-69-1	Aroclor-1254	1788 U	33 U	1788 U	1788 U	1888 U	1988 U
11896-82-5	Aroclor-1268	1788 U	33 U	1788 U	1788 U	1888 U	1988 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

FIELD DATA	COMPONENT	CONCENTRATION (ug/L)	DATE	TIME	ANALYST	LAB	STATUS
SAMPLE I.D.	AI-SD-163-81	AI-SD-164-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81
SAMPLE DATE	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
SAMPLE TIME	1510	1552	1638	1645	1635	1635	1700
SAMPLERS							
ERA Tag Nos.	8-93844, 8-93845	8-93847, 8-93848	8-93850, 8-93851	8-93853, 8-93854	8-93856, 8-93857	8-93859	8-93859
SPECIFIC CONDUCTANCE							
pH							
EH							
CASE #	12196	12196	12196	12196	12196	12196	12196
SAMPLE METHOD	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE
SAMPLE TYPE	88	N	N	W6	R	BFS	BFS
OTR #	HC414	HC415	HC416	HC417	HC418	HC419	HC419
CAS NO.	COMPONENT						

VOLATILE COMPOUNDS

74-87-3	Chloromethane	10 U	12 U	10 U	12 U	10 U	10 U
74-83-9	Bromomethane	10 U	12 U	10 U	12 U	10 U	10 U
75-81-4	Vinyl Chloride	10 U	12 U	10 U	12 U	10 U	10 U
75-88-3	Chloroethane	10 U	12 U	10 U	12 U	10 U	10 U
75-49-2	Methylene Chloride	8	4 BJ	6	6 U	6 U	27 B
67-64-1	Acetone	10 U	12 U	10 U	12 U	10 U	9 J
75-15-8	Carbon Disulfide	5 U	6 U	5 U	6 U	5 U	5 U
75-35-4	1,1-Dichloroethene	5 U	6 U	5 U	6 U	5 U	5 U
75-34-3	1,1-Dichloroethane	5 U	6 U	5 U	6 U	5 U	5 U
548-59-8	1,2-Dichloroethene (total)	5 U	6 U	5 U	6 U	5 U	5 U
67-66-3	Chloroform	12	6 U	9	6 U	6 U	68
107-86-2	1,2-Dichloroethane	5 U	6 U	5 U	6 U	5 U	5 U
78-93-3	2-Butanone	10 U	12 U	10 U	12 U	10 U	290 EJ
71-55-6	1,1,1-Trichloroethane	1 J	6 U	5 U	6 U	5 U	5 U
56-23-5	Carbon Tetrachloride	5 U	6 U	5 U	6 U	5 U	28
118-85-4	Vinyl Acetate	10 U	12 U	10 U	12 U	10 U	10 U
75-27-4	Bromodichloromethane	1 J	6 U	5 U	6 U	5 U	5 U
78-87-5	1,2-Dichloropropane	5 U	6 U	5 U	6 U	5 U	5 U
10061-82-6	Trans-1,3-Dichloropropene	5 U	6 U	5 U	6 U	5 U	5 U
79-81-6	Trichloroethene	5 U	6 U	5 U	6 U	5 U	13
124-48-1	Dibromochloromethane	5 U	6 U	5 U	6 U	5 U	5 U
79-80-5	1,1,2-Trichloroethane	5 U	6 U	5 U	6 U	5 U	100
71-43-2	Benzene	5 U	6 U	5 U	6 U	5 U	5 U
10061-81-5	cis-1,3-Dichloropropene	5 U	6 U	5 U	6 U	5 U	5 U
118-75-8	2-Chloroethylvinylether	5 U	6 U	5 U	6 U	5 U	5 U
75-25-2	Bromoform	5 U	6 U	5 U	6 U	5 U	5 U
591-78-6	2-Hexanone	1 J	6 U	5 U	6 U	5 U	5 U
108-10-1	4-Methyl-2-Pentanone	10 U	12 U	10 U	12 U	10 U	10 U
127-18-4	Tetrachloroethene	5 U	6 U	5 U	6 U	5 U	95
79-34-5	1,1,2,2-Tetrachloroethane	5 U	6 U	5 U	6 U	5 U	5 U
108-88-3	Toluene	2 J	6 U	5 U	6 U	5 U	5 U
108-98-7	Chlorobenzene	5 U	6 U	5 U	6 U	5 U	5 U
100-41-4	Ethylbenzene	5 U	6 U	5 U	6 U	5 U	5 U
100-42-5	Styrene	5 U	6 U	5 U	6 U	5 U	5 U
1338-28-7	Total Xylenes	5 U	6 U	5 U	6 U	5 U	46

COMPONENT CONCENTRATION (ug/L) SAMPLE SITE INFORMATION AND PARAMETERS

	AI-SD-163-81	AI-SD-164-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81
	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
	1510	1552	1630	1645	1635	1700
	1510	1552	1630	1645	1635	1700
SEMIVOLATILE COMPOUNDS						
108-95-2 Phenol	87 U	790 U	770 U	83 U	750 U	150 J
111-44-4 bis(2-Chloroethyl)Ether	87 U	790 U	770 U	83 U	750 U	660 U
95-57-8 2-Chlorophenol	87 U	790 U	770 U	83 U	750 U	660 U
541-73-1 1,3-Dichlorobenzene	87 U	790 U	770 U	83 U	750 U	660 U
106-46-7 1,4-Dichlorobenzene	87 U	790 U	770 U	83 U	750 U	660 U
100-51-6 Benzyl Alcohol	87 U	790 U	770 U	83 U	750 U	370 J
95-58-1 1,2-Dichlorobenzene	87 U	790 U	770 U	83 U	750 U	660 U
95-48-7 2-Methylphenol	87 U	790 U	770 U	83 U	750 U	660 U
39638-32-9 bis(2-Chloroisopropyl)Ether	87 U	790 U	770 U	83 U	750 U	660 U
106-44-5 4-Methylphenol	87 U	790 U	770 U	83 U	750 U	660 U
621-64-7 N-Nitroso-Di-n-Propylamine	87 U	790 U	770 U	83 U	750 U	660 U
67-72-1 Hexachloroethane	87 U	790 U	770 U	83 U	750 U	660 U
98-95-3 Nitrobenzene	87 U	790 U	770 U	83 U	750 U	3500
78-59-1 Isophorone	87 U	790 U	770 U	83 U	750 U	3000
88-75-5 2-Nitrophenol	87 U	790 U	770 U	83 U	750 U	660 U
105-67-9 2,4-Dimethylphenol	87 U	790 U	770 U	83 U	750 U	660 U
65-85-0 Benzoic Acid	440 U	3800 U	3800 U	420 U	3400 U	3700 U
111-91-1 bis(2-Chloroethoxy)Methane	87 U	790 U	770 U	83 U	750 U	660 U
120-83-2 2,4-Dichlorophenol	87 U	790 U	770 U	83 U	750 U	660 U
120-82-1 1,2,4-Trichlorobenzene	87 U	790 U	770 U	83 U	750 U	3100
91-20-3 Naphthalene	87 U	790 U	770 U	83 U	750 U	3500
106-47-8 4-Chloroaniline	87 U	790 U	770 U	83 U	750 U	660 U
87-68-3 Hexachlorobutadiene	87 U	790 U	770 U	83 U	750 U	660 U
59-58-7 4-Chloro-3-Methylphenol	87 U	790 U	770 U	83 U	750 U	660 U
91-57-6 2-Methylnaphthalene	87 U	790 U	770 U	83 U	750 U	330 J
77-47-4 Hexachlorocyclopentadiene	87 U	790 U	770 U	83 U	750 U	660 U
88-86-2 2,4,6-Trichlorophenol	440 U	3800 U	3800 U	420 U	3400 U	660 U
95-95-4 2,4,5-Trichlorophenol	440 U	3800 U	3800 U	420 U	3400 U	3200 U
91-58-7 2-Chloronaphthalene	87 U	790 U	770 U	83 U	750 U	660 U
88-74-4 2-Nitroaniline	440 U	3800 U	3800 U	420 U	3400 U	3200 U
131-11-3 Dimethyl Phthalate	87 U	790 U	770 U	83 U	750 U	660 U
208-96-8 Acenaphthylene	87 U	790 U	770 U	83 U	750 U	660 U
99-89-2 3-Nitroaniline	440 U	3800 U	3800 U	420 U	3400 U	3200 U
83-32-9 Acenaphthene	87 U	790 U	770 U	83 U	750 U	1300
51-28-5 2,4-Dinitrophenol	440 U	3800 U	3800 U	420 U	3400 U	620 J
100-82-7 4-Nitrophenol	440 U	3800 U	3800 U	420 U	3400 U	3200 U
132-64-9 Dibenzofuran	87 U	790 U	770 U	83 U	750 U	1100
121-14-2 2,4-Dinitrotoluene	87 U	790 U	770 U	83 U	750 U	660 U
606-28-2 2,6-Dinitrotoluene	87 U	790 U	770 U	83 U	750 U	660 U
84-66-2 Diethylphthalate	87 U	790 U	770 U	83 U	750 U	660 U
7005-72-3 4-Chlorophenyl-phenylether	87 U	790 U	770 U	83 U	750 U	660 U
86-73-7 Fluorene	87 U	790 U	770 U	83 U	750 U	660 U
100-10-6 4-Nitroaniline	440 U	3800 U	3800 U	420 U	3400 U	3200 U
534-52-1 4,6-Dinitro-2-Methylphenol	440 U	3800 U	3800 U	420 U	3400 U	3200 U
86-38-6 N-Nitrosodiphenylamine (1)	87 U	790 U	770 U	83 U	750 U	660 U
101-55-3 4-Bromophenyl-phenylether	87 U	790 U	770 U	83 U	750 U	660 U
110-74-1 Hexachlorobenzene	87 U	790 U	770 U	83 U	750 U	660 U

1/31/1990

PAGE 3 of 3
Set 3
Rev. 1COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	SAMPLE I.D.	AI-SD-163-81	AI-SD-164-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81	AI-SD-165-81
	SAMPLE DATE	7/20/89	7/20/89	7/20/89	7/20/89	7/20/89	7/20/89
	SAMPLE TIME	1510	1552	1630	1645	1635	1700
87-84-5	Pentachlorophenol	440 U	3800 U	3800 U	420 U	3600 U	1400 J
85-81-8	Phenanthrene	87 U	310 J	770 U	83 U	750 U	660 U
120-12-7	Anthracene	87 U	790 U	770 U	83 U	750 U	660 U
84-74-2	Di-n-Butylphthalate	39 BJ	470 BJ	1200 8	38 BJ	810 8	700 8
286-44-0	Fluoranthene	87 U	260 J	770 U	83 U	750 U	660 U
129-80-0	Pyrene	87 U	220 J	770 U	83 U	750 U	660 U
85-68-7	Butylbenzylphthalate	87 U	790 U	770 U	83 U	750 U	170 J
91-94-1	3,3'-Dichlorobenzidine	170 U	1600 U	1500 U	170 U	1500 U	1300 U
56-55-3	Benzo(a)Anthracene	87 U	100 J	770 U	83 U	750 U	660 U
117-18-7	bis(2-Ethylhexyl)Phthalate	21 BJ	280 BJ	400 BJ	27 BJ	410 BJ	2100 8
218-81-9	Chrysene	87 U	110 J	770 U	83 U	750 U	660 U
117-84-0	Di-n-Octyl Phthalate	87 U	790 U	770 U	83 U	750 U	660 U
285-99-2	Benzo(b)Fluoranthene	87 U	790 U	770 U	83 U	750 U	1000
207-88-9	Benzo(k)Fluoranthene	87 U	790 U	770 U	83 U	750 U	660 U
50-32-8	Benzo(a)Pyrene	87 U	790 U	770 U	83 U	750 U	660 U
193-39-5	Indeno(1,2,3-cd)Pyrene	87 U	790 U	770 U	83 U	750 U	660 U
53-78-3	Dibenz(a,h)Anthracene	87 U	790 U	770 U	83 U	750 U	660 U
191-24-2	Benzo(g,h,i)Perylene	87 U	790 U	770 U	83 U	750 U	660 U
***** UNDILUTED PESTICIDE/PCBs *****							
319-84-6	Alpha-BHC	2.2 U	190 U	94 U	2.1 U	91 U	77 U
319-85-7	Beta-BHC	2.2 U	190 U	94 U	2.1 U	91 U	77 U
319-86-8	Delta-BHC	2.2 U	190 U	94 U	2.1 U	91 U	77 U
58-89-9	Gamma-BHC(Lindane)	2.2 U	190 U	94 U	2.1 U	91 U	77 U
76-44-8	Heptachlor	2.2 U	190 U	94 U	2.1 U	91 U	77 U
389-80-2	Aldrin	2.2 U	190 U	94 U	2.1 U	91 U	77 U
1824-57-3	Heptachlor Epoxide	2.2 U	190 U	94 U	2.1 U	91 U	77 U
959-98-8	Endosulfan I	2.2 U	190 U	94 U	2.1 U	91 U	77 U
68-57-1	Dieldrin	4.4 U	380 U	190 U	4.2 U	180 U	160
72-55-9	4,4'-DDE	4.4 U	380 U	190 U	4.2 U	180 U	150 U
72-28-8	Endrin	4.4 U	380 U	190 U	4.2 U	180 U	150 U
33213-65-9	Endosulfan II	4.4 U	380 U	190 U	4.2 U	180 U	150 U
72-54-8	4,4'-DDD	4.4 U	380 U	190 U	4.2 U	180 U	150 U
1831-87-8	Endosulfan Sulfate	4.4 U	380 U	190 U	4.2 U	180 U	150 U
50-29-3	4,4'-DDT	4.4 U	380 U	190 U	4.2 U	180 U	150 U
72-43-5	Methoxychlor	22 U	1900 U	940 U	21 U	910 U	770 U
53494-70-5	Endrin Ketone	4.4 U	380 U	190 U	4.2 U	180 U	150 U
57-74-9	Chlordane	22 U	1900 U	940 U	21 U	910 U	770 U
5183-71-9	Chlordane-alpha	22 U	1900 U	940 U	21 U	910 U	770 U
5183-74-2	Chlordane-gamma	44 U	3800 U	1900 U	42 U	1800 U	1500 U
8801-35-2	Toxaphene	22 U	1900 U	940 U	21 U	910 U	770 U
12674-11-2	Aroclor-1816	22 U	1900 U	940 U	21 U	910 U	770 U
11184-28-2	Aroclor-1221	22 U	1900 U	940 U	21 U	910 U	770 U
11141-16-5	Aroclor-1232	22 U	1900 U	940 U	21 U	910 U	770 U
53469-21-9	Aroclor-1242	22 U	1900 U	940 U	21 U	910 U	770 U
12672-29-6	Aroclor-1248	22 U	1900 U	940 U	21 U	910 U	770 U
11097-69-1	Aroclor-1254	44 U	3800 U	1900 U	42 U	1800 U	1500 U
11096-82-5	Aroclor-1260	44 U	3800 U	1900 U	42 U	1800 U	1500 U

COMPONENT CONCENTRATION (ug/L)

SAMPLE SITE INFORMATION AND PARAMETERS

FIELD DATA	COMPONENT	AI-SD-145-01	AI-SD-144-01	AI-SD-145-01	AI-SD-145-01	AI-SD-145-01	AI-SD-145-01
SAMPLE I.D.	CHLOROMETHANE	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89	7/28/89
SAMPLE DATE	BROMOMETHANE	1715	1552	1638	1645	1635	1700
SAMPLE TIME	VINYL CHLORIDE	8-93861	8-93847, 8-93848	8-93850, 8-93851	8-93853, 8-93854	8-93856, 8-93857	8-93859
SAMPLERS	CHLOROETHANE	12196	12196	12196	12196	12196	12196
ERA Tag Nos.	METHYLENE CHLORIDE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE
SPECIFIC CONDUCTANCE	ACETONE	8FS	N	N	LAB	R	BFS
pH	CARBON DISULFIDE	HC420	HC415	HC416	HC417	HC418	HC419
EH	1,1-DICHLOROETHANE						
CASE #	1,1-DICHLOROETHANE						
SAMPLE METHOD	1,2-DICHLOROETHANE (total)						
SAMPLE TYPE	CHLOROFORM						
UTR #	1,2-DICHLOROETHANE						

CAS NO.

VOLATILE COMPOUNDS

74-87-3	Chloromethane	10 UJ	12 U	12 U	10 U	12 U	10 U
74-83-9	Bromomethane	10 U	12 U	12 U	10 U	12 U	10 U
75-01-4	Vinyl Chloride	10 U	12 U	12 U	10 U	12 U	10 U
75-00-3	Chloroethane	10 U	12 U	12 U	10 U	12 U	10 U
75-09-2	Methylene Chloride	26 UJ	4 8J	6 8	6 8J	6 U	27 8
67-64-1	Acetone	9 J	12 U	12 U	10 U	3 J	9 J
75-15-0	Carbon Disulfide	5 UJ	6 U	6 U	5 U	6 U	5 U
75-35-4	1,1-Dichloroethene	5 U	6 U	6 U	5 U	6 U	5 U
75-34-3	1,1-Dichloroethane	5 U	6 U	6 U	5 U	6 U	5 U
540-59-0	1,2-Dichloroethene (total)	5 U	6 U	6 U	5 U	6 U	5 U
67-66-3	Chloroform	67	6 U	6 U	9 U	6 U	68 U
107-06-2	1,2-Dichloroethane	5 U	6 U	6 U	5 U	6 U	5 U
78-93-3	2-Butanone	240 EJ	12 U	12 U	10 U	12 U	290 E
71-55-6	1,1,1-Trichloroethane	5 U	6 U	6 U	5 U	6 U	5 U
56-23-5	Carbon Tetrachloride	28	6 U	6 U	5 U	6 U	28 U
108-05-4	Vinyl Acetate	10 U	12 U	12 U	10 U	12 U	10 U
75-27-4	Bromodichloromethane	5 U	6 U	6 U	5 U	6 U	5 U
78-87-5	1,2-Dichloropropane	5 U	6 U	6 U	5 U	6 U	5 U
10061-02-6	Trans-1,3-Dichloropropene	5 U	6 U	6 U	5 U	6 U	5 U
79-01-6	Trichloroethene	13	6 U	6 U	5 U	6 U	13 U
124-48-1	Dibromochloromethane	5 U	6 U	6 U	5 U	6 U	5 U
79-00-5	1,1,2-Trichloroethane	95	6 U	6 U	5 U	6 U	5 U
71-43-2	Benzene	5 U	6 U	6 U	5 U	6 U	100 U
10061-01-5	cis-1,3-Dichloropropene	5 U	6 U	6 U	5 U	6 U	5 U
110-75-8	2-Chloroethylvinylether	5 U	6 U	6 U	5 U	6 U	5 U
75-25-2	Bromoform	5 U	6 U	6 U	5 U	6 U	5 U
591-78-6	2-Hexanone	10 U	12 U	12 U	10 U	12 U	10 U
108-10-1	4-Methyl-2-Pentanone	10 U	12 U	12 U	10 U	12 U	10 U
127-18-4	Tetrachloroethene	92	6 U	6 U	5 U	6 U	95 U
79-34-5	1,1,2,2-Tetrachloroethane	5 U	6 U	6 U	5 U	6 U	5 U
108-88-3	Toluene	5 U	6 U	6 U	5 U	6 U	5 U
108-98-7	Chlorobenzene	5 U	6 U	6 U	5 U	6 U	5 U
100-41-4	Ethylbenzene	5 U	6 U	6 U	5 U	6 U	5 U
100-42-5	Styrene	5 U	6 U	6 U	5 U	6 U	5 U
1338-20-7	Total Xylenes	44	6 U	6 U	5 U	6 U	46 U

COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

	AI-SD-165-01	AI-SD-164-01	AI-SD-165-01	AI-SD-165-01	AI-SD-165-01	AI-SD-165-01
SAMPLE I.D.	7/20/89	7/20/89	7/20/89	7/20/89	7/20/89	7/20/89
SAMPLE DATE	1715	1552	1636	1645	1635	1700
SAMPLE TIME						

SEMIVOLATILE COMPOUNDS						
188-95-2 Phenol	310 J	790 U	770 U	83 U	750 U	150 J
111-44-4 bis(2-Chloroethyl)Ether	660 U	790 U	770 U	83 U	750 U	660 U
95-57-8 2-Chlorophenol	660 U	790 U	770 U	83 U	750 U	660 U
541-73-1 1,3-Dichlorobenzene	660 U	790 U	770 U	83 U	750 U	660 U
186-46-7 1,4-Dichlorobenzene	660 U	790 U	770 U	83 U	750 U	660 U
140-51-6 Benzyl Alcohol	660 U	790 U	770 U	83 U	750 U	370 J
95-58-1 95-58-1,2-Dichlorobenzene	660 U	790 U	770 U	83 U	750 U	660 U
95-48-7 2-Methylphenol	380 J	790 U	770 U	83 U	750 U	660 U
39638-32-9 bis(2-Chloroisopropyl)Ether	660 U	790 U	770 U	83 U	750 U	660 U
186-44-5 4-Methylphenol	660 U	790 U	770 U	83 U	750 U	660 U
621-64-7 N-Nitroso-Di-n-Propylamine	660 U	790 U	770 U	83 U	750 U	660 U
67-72-1 Hexachloroethane	660 U	790 U	770 U	83 U	750 U	660 U
98-95-3 Nitrobenzene	5900	790 U	770 U	83 U	750 U	3500
78-59-1 Isophorone	5700	790 U	770 U	83 U	750 U	3800
88-75-5 2-Nitrophenol	660 U	790 U	770 U	83 U	750 U	660 U
185-67-9 2,4-Dimethylphenol	660 U	790 U	770 U	83 U	750 U	660 U
65-85-0 Benzoic Acid	3200 U	3800 U	3800 U	420 U	3400 U	3200 U
111-91-1 bis(2-Chloroethoxy)Methane	660 U	790 U	770 U	83 U	750 U	660 U
120-83-2 2,4-Dichlorophenol	660 U	790 U	770 U	83 U	750 U	660 U
120-82-1 1,2,4-Trichlorobenzene	4300	790 U	770 U	83 U	750 U	3100
91-20-3 Naphthalene	4300	790 U	770 U	83 U	750 U	3500
186-47-8 4-Chloroaniline	660 U	790 U	770 U	83 U	750 U	660 U
87-68-3 Hexachlorobutadiene	660 U	790 U	770 U	83 U	750 U	660 U
59-58-7 4-Chloro-3-Methylphenol	660 U	790 U	770 U	83 U	750 U	660 U
91-57-6 2-Methylnaphthalene	210 J	790 U	770 U	83 U	750 U	330 J
77-47-4 Hexachlorocyclopentadiene	660 U	790 U	770 U	83 U	750 U	660 U
88-86-2 2,4,6-Trichlorophenol	660 U	790 U	770 U	83 U	750 U	660 U
95-95-4 2,4,5-Trichlorophenol	3200 U	3800 U	3800 U	420 U	3400 U	3200 U
91-58-7 2-Chloronaphthalene	660 U	790 U	770 U	83 U	750 U	660 U
88-74-4 2-Nitroaniline	3200 UJ	3800 U	3800 U	420 U	3400 U	3200 U
131-11-3 Dimethyl Phthalate	660 U	790 U	770 U	83 U	750 U	660 U
288-96-8 Acenaphthylene	660 U	790 U	770 U	83 U	750 U	660 U
99-89-2 3-Nitroaniline	3200 U	3800 U	3800 U	420 U	3400 U	3200 U
83-32-9 Acenaphthene	1700	790 U	770 U	83 U	750 U	1300
51-28-5 2,4-Dinitrophenol	1400 JJ	3800 U	3800 U	420 U	3400 U	620 J
100-42-7 4-Nitrophenol	3200 UJ	3800 U	3800 U	420 U	3400 U	3200 U
132-64-9 Dibenzofuran	1500	790 U	770 U	83 U	750 U	1100
121-14-2 2,4-Dinitrotoluene	660 U	790 U	770 U	83 U	750 U	660 U
686-20-2 2,6-Dinitrotoluene	660 U	790 U	770 U	83 U	750 U	660 U
84-66-2 Diethylphthalate	660 U	790 U	770 U	83 U	750 U	660 U
7005-72-3 4-Chlorophenyl-phenylether	660 U	790 U	770 U	83 U	750 U	660 U
86-73-7 Fluorene	660 U	790 U	770 U	83 U	750 U	660 U
100-10-6 4-Nitroaniline	3200 U	3800 U	3800 U	420 U	3400 U	3200 U
534-52-1 4,6-Dinitro-2-Methylphenol	3200 U	3800 U	3800 U	420 U	3400 U	3200 U
86-38-6 N-Nitrosodiphenylamine (I)	660 U	790 U	770 U	83 U	750 U	660 U
101-55-3 4-Bromophenyl-phenylether	660 U	790 U	770 U	83 U	750 U	660 U
118-74-1 Hexachlorobenzene	660 U	790 U	770 U	83 U	750 U	660 U

$\frac{d}{dt} \left(\frac{\partial L}{\partial v_i} \right) = \frac{\partial L}{\partial x_i}$

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[illegible]

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1. The first group of people who are not in the labor force are those who are not in the labor force because they are not in the labor force.

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COMPONENT CONCENTRATION (ug/L)
SAMPLE SITE INFORMATION AND PARAMETERS

;	SAMPLE I.D.	AI-SD-165-01	AI-SD-164-01	AI-SD-165-01	AI-SD-165-01	AI-SD-165-01
;	SAMPLE DATE	7/20/89	7/20/89	7/20/89	7/20/89	7/20/89
;	SAMPLE TIME	1715	1552	1638	1645	1700
87-86-5	Pentachlorophenol	1600 J	3800 U	3800 U	420 U	1400 J
85-01-8	Phenanthrene	660 U	310 J	770 U	83 U	660 U
120-12-7	Anthracene	660 U	790 U	770 U	83 U	660 U
84-74-2	Di-n-Butylphthalate	830 8	470 BJ	1200 8	38 BJ	700 8
286-44-0	Fluoranthene	660 U	260 J	770 U	83 U	660 U
129-00-0	Pyrene	660 U	220 J	770 U	83 U	660 U
85-68-7	Butylbenzylphthalate	660 U	790 U	770 U	83 U	170 J
91-94-1	3,3'-Dichlorobenzidine	1300 U	1600 U	1500 U	170 U	1300 U
56-55-3	Benzo(a)Anthracene	660 U	100 J	770 U	83 U	660 U
117-18-7	bis(2-Ethylhexyl)Phthalate	3100 8	280 BJ	480 BJ	27 BJ	2100 8
210-01-9	Chrysene	660 U	110 J	770 U	83 U	660 U
117-04-0	Di-n-Octyl Phthalate	660 U	790 U	770 U	83 U	660 U
205-99-2	Benzo(b)Fluoranthene	2600	790 U	770 U	83 U	1000
207-08-9	Benzo(k)Fluoranthene	660 U	790 U	770 U	83 U	660 U
50-32-8	Benzo(a)Pyrene	660 U	790 U	770 U	83 U	660 U
193-39-5	Indeno(1,2,3-cd)Pyrene	660 U	790 U	770 U	83 U	660 U
53-70-3	Dibenz(a,h)Anthracene	660 U	790 U	770 U	83 U	660 U
191-24-2	Benzo(g,h,i)Perylene	660 U	790 U	770 U	83 U	660 U
***** UNDILUTED PESTICIDE/PCBs *****						
319-84-6	Alpha-BHC	80 U	96 U	47 U	2.1 U	40 U
319-85-7	Beta-BHC	80 U	96 U	47 U	2.1 U	40 U
319-86-8	Delta-BHC	80 U	96 U	47 U	2.1 U	40 U
58-89-9	Gamma-BHC(Lindane)	80 U	96 U	47 U	2.1 U	40 U
76-44-8	Heptachlor	80 U	96 U	47 U	2.1 U	40 U
309-00-2	Aldrin	80 U	96 U	47 U	2.1 U	40 U
1024-57-3	Heptachlor Epoxide	80 U	96 U	47 U	2.1 U	40 U
959-98-8	Endosulfan I	80 U	96 U	47 U	2.1 U	40 U
60-57-1	Dieldrin	270	190 U	94 U	4.2 U	170 U
72-55-9	4,4'-DDE	160 U	190 U	94 U	4.2 U	80 U
72-28-8	Endrin	160 U	190 U	94 U	4.2 U	80 U
33213-63-9	Endosulfan II	160 U	190 U	94 U	4.2 U	80 U
72-54-8	4,4'-DDD	160 U	190 U	94 U	4.2 U	80 U
1031-07-8	Endosulfan Sulfate	160 U	190 U	94 U	4.2 U	80 U
58-29-3	4,4'-DDT	160 U	190 U	94 U	4.2 U	80 U
72-43-5	Methoxychlor	800 U	960 U	470 U	21 U	400 U
53494-70-5	Endrin Ketone	160 U	190 U	94 U	4.2 U	80 U
57-74-9	Chlordane	800 U	960 U	470 U	21 U	400 U
5103-71-9	Chlordane-alpha	800 U	960 U	470 U	21 U	400 U
5103-74-2	Chlordane-gamma	1600 U	1900 U	940 U	42 U	800 U
8001-35-2	Toxaphene	800 U	960 U	470 U	21 U	400 U
12674-11-2	Aroclor-1016	800 U	960 U	470 U	21 U	400 U
11104-20-2	Aroclor-1221	800 U	960 U	470 U	21 U	400 U
11141-16-5	Aroclor-1232	800 U	960 U	470 U	21 U	400 U
53469-21-9	Aroclor-1242	800 U	960 U	470 U	21 U	400 U
12672-29-6	Aroclor-1248	1600 U	1900 U	940 U	42 U	800 U
11097-69-1	Aroclor-1254	1600 U	1900 U	940 U	42 U	800 U
11096-82-5	Aroclor-1260	1600 U	1900 U	940 U	42 U	800 U

